



SHOUT
SHARE **IT**

inches high, more or less branched in a forked manner, with a solitary flower from the axis. *Leaves* opposite, roundish, ovate or oblong, the upper ones sessile, the lower tapering into a footstalk, and clothed with soft slender spreading hairs, the margins entire, having a mid-rib, broad at the base. *Flowers* numerous, in terminal sub-umbellate heads, each elevated on a downy *pedicle*, about the length of the calyx. *Bractea* small, leafy. *Calyx* of five lanceolate segments, clothed with hairs, each with a narrow pale membranous margin, rather broader on the inner ones. *Petals* white, about as long as the calyx, cloven half way down. *Stamens* with slender *filaments*, and small roundish yellow *anthers*, of two cells. *Styles* short, with downy *stigmas*. *Capsule* cylindrical, as long again as the calyx, slightly curved upwards, striated with ten slender ribs, terminating between ten lanceolate erect teeth, with the margins rolled back. *Seeds* numerous, very small, pale, yellowish brown, kidney-shaped, roughish, with elevated points on the outer edges.

Habitat.—Fields, pastures gardens, road sides, &c.; frequent.

Annual; flowering from April to June.

This is a very common and very variable plant. It is sometimes scarcely branched, except at the top, but not unfrequently also it is branched from the base, and has either a solitary flower from each axis or is without it; the leaves are more or less roundish, ovate or oblong, with an acute or obtuse point, and the whole plant is clothed with spreading simple or glandular hairs, or sometimes nearly smooth, and the upper part of the stem is sometimes viscid, from the hairs being tipped with small glands, but more frequently it is not so, but simply hairy.

2. *C. viscosum*, Linn. (Fig. 740.) *Narrow-leaved Mouse-ear Chick-weed*. Stem nearly erect, hairy, viscid; leaves oblong, lanceolate, or ovate, the lower ones narrowed into a footstalk; panicle branched, sub-umbellate; bractea with a membranous margin; calyx oblong, with a smooth membranous margin, half as long as the pedicles; petals about as long as the calyx; capsule curved upwards, nearly as long again as the calyx.

English Botany, t. 790.—English Flora, vol. ii. p. 331.—Hooker, British Flora, vol. i. p. 215.—Lindley, Synopsis, p. 51.—*C. Triviale*, Link.—Koch. Flora Germ. et Helvet, p. 122.

Root fibrous. *Stem* shortly procumbent at the base, becoming erect, from three to six or eight inches high, mostly much branched below, simple upwards, round, leafy, especially at the base it is much crowded, more or less thickly clothed with hairs, which are simple or glandular, and often viscid in the upper part of the stem. *Leaves* opposite, oblong lanceolate, or oblong ovate, sessile, the lower ones tapering into a footstalk, each with a keeled mid-rib. *Panicle* terminal, in forked branches, bearing sub-umbellate clusters of numerous flowers, each elevated on a downy *pedicle*, about as long again as

the calyx. *Bracteas* ovate lanceolate, herbaceous, the upper ones with a narrow membranous margin. *Calyx* of five ovate lanceolate segments, downy, with a mid-rib and smooth pale membranous margin. *Petals* bifid, about as long as the calyx. *Stamens* with slender *filaments*, and roundish ovate *anthers*, yellow, of two cells. *Styles* short, with downy *stigmas*. *Capsule* pale thin smooth membranous cylindrical, as long again as the calyx, somewhat curved upwards with ten slender ribs, terminating between the ten erect lanceolate obtuse teeth at the mouth, having the margins rolled back. *Seeds* numerous, small, kidney-shaped, dark brown, rough, with semi-circular lines of elevated points.

Habitat.—Walls, waste places, poor meadows, &c.; frequent.

Perennial; flowering during the summer months.

This species, though nearly allied to the former, is readily distinguished by its oblong leaves, less downy segments of the calyx, having a broadish smooth membranous margin, as well as the bracteas, and the pedicle of the fruit is often twice or three times as long as the calyx. The whole plant is more or less hairy and viscid; it is very variable in size, and the base is often much crowded with leaves, and they are of a deeper duller green than those of *C. vulgatum*, the stem frequently dark purplish red.

3. *C. semidecandrum*, Linn. (Fig. 741.) *Little Mouse-ear Chickweed*. Stem erect, or ascending, hairy, viscid; leaves oblong and ovate, the lower ones narrowed into a petiole; panicle branched, sub-aggregate; all the bractea and calyx segments with a pale membranous eroded margin; pedicles longer than the calyx; petals slightly cloven, about as long as the calyx.

English Botany, t. 1630.—English Flora, vol. ii. p. 331.—Hooker, British Flora, vol. i. p. 216.—Lindley, Synopsis, p. 51.

β. pumilum. Lower bractea without a membranous margin; petals more deeply cloven. Lindley, Synopsis, p. 51.

C. pumilum, Curt. Lond. fas. c. 6. t. 30.—Koch. Flora German. et Helvet. p. 122.

γ. tetrandrum. Calyx petals and stamens mostly four. Lindley, Synopsis, p. 51.

C. tetrandrum, Curt.—Lond. fas. c. 6. t. 31.—*Sagina cerastoides*, Smith.—English Botany, t. 166. (bad).—Hooker, British Flora, vol. i. p. 216.—English Flora, vol. ii. p. 332.

Root small, branched, fibrous. *Stem* from two to six inches high, erect or ascending, simple or branched at the base, round, more or less clothed with hairs, which are simple, or tipped with a gland, especially in the upper part. *Leaves* opposite, ovate, or oblong ovate, the lower ones tapering into a broadish footstalk, somewhat paler beneath than above, with a stout mid-rib, and more or less clothed with short hairs. *Panicle* terminal, of forked spreading branches, somewhat clustered at the extremity, and with a solitary flower from the axis of the divarica-

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FLORIGRAPHIA BRITANNICA;

ENGRAVINGS AND DESCRIPTIONS

FLOWERING PLANTS AND FERNS

OF BRITAIN.

FLORIGRAPHIA BRITANNICA.

RICHARD DRAKE, M.D.

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FLOWERING PLANTS AND FERNS

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BY

RICHARD DEAKIN, M.D.,

AUTHOR OF "THE FLORA OF THE COLOSSEUM OF ROME," ETC.

VOL. II.—CLASSES VI. TO XV.

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FLOWERING PLANTS AND TREES

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RICHARD DEARIN, M.D.

Author of "The Grasses of the County of Kent," &c.

VOL. II.—*Gramineae*, &c. to *Lythraea*.

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SYNOPSIS OF THE GENERA.

CLASS 6. HEXANDRIA.—6 *Stamens (equal.)*

ORDER I. MONOGYNIA.—1 *PISTIL.*

* *Perianth double, inferior.*

1. BERBERIS, [Page 461.] *Calyx* of six coloured concave pieces, the outer ones scaly. *Petals* six, each with two glands at the base. *Fruit* a two or three seeded fleshy berry.—*Shrubs with spiny stems and leaves, and yellow racemose flowers.*
2. FRANKENIA, [Page 463.] *Calyx* tubular, four or five-cleft. *Petals* six. *Stigmas* three-cleft. *Capsule* of one cell, from two to four valved. *Seeds* minute, attached to the margin of the valves.—*Herbaceous plants or under shrubs.*
3. PEPLIS, [Page 464.] *Calyx* campanulate, with six large erect teeth, and six small alternate spreading ones. *Petals* six, small, or wanting. *Stigmas* capitate. *Capsule* membranous, two-celled, many seeded.—*Herbaceous plants, with opposite or alternate leaves and axillary flowers.*

(See *Lythrum* in Class 12.)

** *Perianth single, superior.*

4. LEUCOJUM, [Page 465.] *Perianth* with a short tube and a campanulate limb of six equal pieces, thickened at the apex. *Flowers* from a *spatha*.
5. GALANTHUS, [Page 466.] *Perianth* with a short tube, and a limb of six unequal pieces, the three outer ones pointed and spreading, the three inner half as long, erect and emarginate. *Flowers* from a *spatha*.
6. NARCISUS, [Page 467.] *Perianth* funnel-shaped, with a spreading six parted limb, orifice of the tube surrounded with a campanulate or cup-shaped crown. *Stamens* inserted into the tube, and concealed within the cup. *Flowers* from a *spatha*.

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*** *Perianth single, inferior, of one piece, the limb of six teeth, or six-cleft.*

7. MUSCARI, [Page 470.] *Perianth* ovate, inflated, or cylindrical, constricted at the mouth, the *limb* very short, of six teeth. *Capsule* with three prominent angles. *Cells* two seeded.
8. HYACINTH'US, [Page 470.] *Perianth* tubular, six-cleft, or six-partite, the segments reflexed, or spreading at the apex. *Stamens* inserted about the middle of the perianth. *Capsule* obtusely three angled. *Cells* many seeded.
9. CONVALLARIA, [Page 471.] *Perianth* campanulate, or tubular, six-cleft or six-toothed. *Fruit* a round three celled berry, with one or two seeds in each cell.

**** *Perianth single, inferior, of six pieces.*

10. ASPARAGUS, [Page 475.] *Perianth* of six equal deciduous pieces, the *stamens* inserted into the base. *Filaments* subulate, smooth. *Anthers* peltate, erect. *Fruit* a round berry, of from one to three cells, with few seeds in each. *Embryo* out of the centre.
11. SCILLA, [Page 477.] *Perianth* of six equal deciduous generally spreading pieces. *Filaments* filiform, smooth, inserted into the base of the perianth. *Fruit* a three celled capsule, with roundish seeds. (*Flowers in racemes.*)
12. ORNITHOGALUM, [Page 479.] *Perianth* of six persistent pieces. *Stamens* inserted into the base of the perianth, the three outer ones with the *filaments* dilated at the base. *Stigma* small, capitate. *Fruit* a three angled three furrowed three celled capsule. *Seeds* ovate, or angular. (*Flowers racemose or corymbose, with membranous bracteas.*)
13. GAL'EA, [Page 481.] *Perianth* of six persistent pieces. *Filaments* not dilated at the base. *Stigma* gaping. *Fruit* a three angled three celled capsule. *Seeds* round.—(*Flowers umbellate or corymbose, yellow, with leafy bracteas.*)
14. ALLIUM, [Page 482.] *Perianth* of six ovate pieces, campanulate, or spreading. *Stigma* simple, obtuse. *Fruit* a three angled three celled capsule. *Seeds* angular. (*Flowers umbellate, arising from a two leaved spathe.*)
15. ANTHERICUM, [Page 488.] *Perianth* of six equal spreading elliptical deciduous pieces. *Stamens* with filiform mostly

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bearded *filaments*. *Capsule* roundish, three celled. *Seeds* few, angular.

16. TULIP'A, [Page 488.] *Perianth* campanulate, of six equal pieces. *Stigmas* thick, sessile, three lobed. *Capsule* oblong, three cornered. *Seeds* flat.
17. FRITILLA'RIA, [Page 490.] *Perianth* campanulate, of six pieces, each with a nectariferous cavity at the base. *Stigmas* three, spreading. *Capsule* oblong, three celled, three valved. *Seeds* flat.
18. ACO'RUS, [Page 491.] *Flowers* arranged upon a spadix. *Spatha* wanting. *Perianth* of six persistent pieces, or scales. *Stamens* opposite the divisions of the perianth. *Stigmas* obtuse, sessile. *Fruit* a dry three celled three valved many seeded *capsule*.
19. NARTHE'Cium, [Page 492.] *Perianth* of six lanceolate spreading pieces. *Stamens* six, inserted into the base of the segments. *Filaments* persistent, woolly. *Style* short. *Stigmas* angular. *Ovary* pyramidal. *Fruit* a three celled three valved *capsule*. *Seeds* numerous, with a filiform appendage at the base and apex.

***** *Perianth* single, inferior, glumaceous.
20. JUN'cus, [Page 493.] *Perianth* of six pieces, glumaceous. *Stamens* six (rarely three.) *Capsule* three celled, three valved, having the dissepiments in their middle. *Seeds* numerous, attached to the dissepiments. (*Stems* tapering, leafless, or with rigid smooth round rarely plane leaves.)
21. LU'ZULA, [Page 510.] *Perianth* of six pieces, glumaceous. *Stamens* six (rarely three.) *Capsule* of one cell, three valved, valves without dissepiments, three seeded. (*Leaves* soft, plane, generally hairy.)

(See *Pep'is* in Order 1. *Polygonum* in Class 8.)

ORDER II. DIGYNIA.—2 *Pistils*.

22. OXY'RIA, [Page 517.] *Perianth* of four pieces, the two outer ones smallest. *Stamens* six, two at the base of each of the inner segments, and one at the outer ones. *Styles* two. *Stigmas* tufted. *Fruit* a nut, with a winged membranous margin.
-

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ORDER III. TRIGYNIA.—3 *Pistils*.

* *Perianth of six pieces.*

23. RU'MEX, [Page 518.] *Perianth* of six pieces, the three outer ones somewhat united at the base, the three inner becoming larger after flowering. *Stigmas* tufted. *Nuts* with three sharp angles enclosed in the persistent perianth.
24. SCHEUCHZERIA, [Page 529.] *Perianth* persistent, of six pieces. *Anthers* elongated upon very slender filaments. *Capsules* three to six, united at the base, roundish, inflated, each two valved, and one or two seeded.
25. TRIGLO'CHIN, [Page 530.] *Perianth* of six deciduous pieces. *Anthers* nearly sessile. *Capsules* from three to six each single seeded, united at the angles, and mostly separating from the base.
26. TOFIELD'IA, [Page 532.] *Perianth* of six deciduous pieces, with minute bracteas at the base of the peduncle. *Stamens* smooth. *Capsules* three to six, united below the middle, many seeded. *Seeds* roundish oblong.

** *Perianth of one piece.*

27. COL'CHICUM, [Page 533.] *Perianth* single, tubular, long, with a campanulate six-partite limb. *Stamens* inserted at the top of the tube. *Styles* very long. *Capsule* three, single celled, united at the base, inflated, many seeded.

(See *Elatine* in Class 8.)

ORDER IV. HEXAGYNIA.—6 *Pistils*.

28. ACTINOCAR'PUS, [Page 535.] *Calyx* of six pieces. *Petals* three. *Ovaries* six to eight. *Capsules* united at the base, and spreading in a star-like manner, each two seeded.

ORDER V. POLYGYNIA.—Many *Pistils*.

29. ALIS'MA, [Page 536.] *Calyx* of three pieces. *Petals* three. *Ovaries* numerous. *Nuts* distinct, numerous, clustered, indehiscent, single seeded, deciduous.

CLASS 7. HEPTANDRIA.—7 *Stamens*.

ORDER I. MONOGYNIA.—1 *Pistil*.

1. TRIENTA'LIS, [Page 539.] *Calyx* seven partite. *Corolla* plane, of seven segments, united at the base into a ring.

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Stamens seven, inserted into the ring. *Capsule* somewhat fleshy, of one cell, bursting with seven valves. *Seeds* numerous.

(See *Ulmus* in Class 5, Order 2.)

CLASS 8. OCTANDRIA.—8 *Stamens*.

ORDER I. MONOGYNIA. 1 *Pistil*.

* *Perianth* double, each of five pieces, inferior.

1. A'CER, [Page 540.] *Calyx* five-cleft. *Petals* five. *Flowers* polygamous. *Stamens* eight, rarely five or ten. *Fruit* of two carpels, united at the base, each with a long membranous wing, single celled, and from one to two seeded.—*Trees with simple deciduous leaves*.

** *Perianth* double, each of four pieces, superior.

2. EPILO'Bium, [Page 543.] *Calyx* tubular, four angled, with a four-partite deciduous limb. *Petals* four. *Stamens* eight. *Style* filiform, with a four or two-cleft stigma. *Capsule* linear, four angled, four celled, four valved, and many seeded. *Seeds* with a tuft of hairs at one extremity.—*Herbaceous plants, with purple or rose coloured flowers*.

3. CENOthe'ra, [Page 551.] *Calyx* tubular, with a reflexed four-partite deciduous limb, more or less combined. *Petals* four. *Stamens* eight. *Stigma* four lobed. *Capsule* linear or winged, of four valves, four celled, and many seeded. *Seeds* naked.—*Herbaceous plants, with alternate simple or pinnatifid leaves, and solitary axillary or terminal spiked flowers, of a blue, yellow, red, white, or variegated colours*.

*** *Perianth* double, corolla monopetalous, superior.

4. VACCI'NIUM, [Page 552.] *Calyx* of four or five teeth, or entire. *Corolla* of one piece, four or five-cleft. *Anthers* of two cells, and with two horns. *Fruit* a globose berry, crowned with the persistent calyx, many seeded.—*Evergreen or deciduous shrubs, with simple alternate leaves and axillary or racemose flowers*.

**** *Perianth* double, corolla monopetalous, inferior.

5. MENZIE'SIA, [Page 555.] *Calyx* in four or five deep segments. *Corolla* ventricose, with a spreading four or five toothed limb. *Stamens* eight to ten. *Capsule* four or five celled, many seeded, four or five valved, forming the dis-

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sepiments by their inflexed margins, and bursting between them.—*Low hardy shrubs, with alternate or scattered leaves, and terminal racemose flowers.*

6. ERI'CA, [Page 557.] *Calyx* of four pieces. *Corolla* campanulate, ovate or ventricose, with a four toothed limb. *Capsule* four celled, four valved, the dissepiments from the middle of the valves.
7. CALLU'NA, [Page 562.] *Calyx* of four coloured pieces, longer than the corolla, and accompanied with four *bracteas*, coloured like the calyx. *Corolla* campanulate, four-cleft. *Capsule* four celled, four valved, the dissepiments adhering to the axis, the valves opening at the dissepiments, and separating from them.
8. CHLO'RA, [Page 564.] *Calyx* eight-partite. *Corolla* nearly rotate, with a short tube and an eight-partite limb. *Stamens* short, inserted into the orifice. *Style* with a two-cleft emarginate *stigma*. *Capsule* of one cell, two valved, many seeded.

***** *Perianth* single, inferior.

9. DA'PHNE, [Page 565.] *Perianth* single, inferior, four-cleft, deciduous. *Style* short, terminal. *Fruit* a one celled single seeded *berry*.

(See *Monotropa* in Class 10.)

DIGYNIA.—2 *Styles*.

(See *Polygonum* in Order 2, *Chrysosplenium* and *Scleranthus* in Class 10.)

ORDER II. TRIGYNIA.—3 *Pistils*.

10. POLY'GONUM, [Page 568.] *Perianth* single, inferior, in four or five deep coloured segments. *Stamens* equal in number to the segments of the perianth, or twice as many, but frequently part of them are abortive. *Styles* two or three. *Fruit* a single seeded compressed or angular *nut*.

ORDER III. TETRAGYNIA.—4 *Pistils*.

11. PA'RIS, [Page 579.] *Calyx* of four pieces. *Petals* four. *Stamens* with the *anthers* of two cells, one on each side of the filament. *Style* four, with simple *stigmas*. *Fruit* a *berry*, of four cells, each cell from four to eight seeded.

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12. *ADOXA*, [Page 580.] *Calyx* half inferior, two or three-cleft. *Corolla* rotate, with a very short tube, and a four or five partite limb. *Stamens* eight or ten. *Anthers* terminal, single celled. *Styles* four or five, with obtuse *stigmas*. *Fruit* a berry, surrounded by the persistent calyx, and crowned by the apex of the styles, four or five celled.—*Herbaceous plants, with compound leaves, and green capitate flowers, the side flowers having the corolla five-cleft, and the terminal ones four-cleft.*
13. *ELA'TINE*, [Page 581.] *Calyx* inferior, three or four partite. *Petals* three or four, sessile. *Stamens* equal in number to the petals, or twice as many. *Styles* three or four, very short. *Stigmas* capitate. *Capsules* three or four celled, three or four valved, and many seeded. *Seeds* cylindrical, attached to a central free receptacle.
(See *Sagina* in Class 4.)
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CLASS 9. ENNEANDRIA.—9 *Stamens*.

ORDER I. HEXAGYNIA. 6 *Pistils*.

1. *BUTOMUS*, [Page 583.] *Perianth* single, inferior, six-partite, coloured. *Stamens* nine, six in an outer circle, three in an inner. *Capsules* six, connate at the base. *Seeds* numerous, linear oblong, attached to the whole inner lining of the capsule.
-

CLASS 10. DECANDRIA.—10 *Stamens*.

ORDER I. MONOGYNIA.—1 *Pistil*.

* *Perianth* double, *corolla* of five petals, rarely four.

1. *MONOTROPA*, [Page 585.] *Calyx* of four or five coloured pieces, gibbous at the base. *Petals* four or five, slightly united at the base. *Stamens* eight or ten. *Capsule* with four or five cells, four or five valves, many seeded. *Seeds* invested with a netted *arillus*.—*Herbaceous parasitical plants, with leafless scaly stems.*
2. *PYROLA*, [Page 586.] *Calyx* five-cleft, persistent. *Petals* five, slightly united at the base. *Style* longer than the *stamens*. *Filaments* awl-shaped, with two celled *anthers*,

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appendiculated at the base. *Capsule* superior, of five cells, dehiscent at the angles of the base. *Seeds* numerous, invested with a winged *arillus*.—*Herbaceous evergreen plants, with white or pink flowers, unilateral, on a simple scape.*

**** *Perianth double, corolla monopetalous.***

3. ANDRO'MEDA, [Page 591.] *Calyx* five-cleft. *Corolla* ovate or campanulate, with a five-cleft reflexed limb. *Stamens* erect. *Anthers* awned. *Capsules* four or five celled, four or five valved, the dissepiments from the middle of the valve.—*Low evergreen shrubs.*
4. ARBUTUS, [Page 592.] *Calyx* five-cleft. *Corolla* ovate, with a small five-cleft revolute limb. *Stamens* ten, villous at the base. *Anthers* opening with terminal pores. *Berry* granulated, five celled, each cell four or five seeded.—*Small evergreen trees or shrubs.*
5. ARCTOSTAPHYLOS, [Page 594.] *Calyx* small, five-cleft. *Corolla* ovate, with a small five-cleft revolute limb. *Stamens* ten, smooth. *Anthers* without pores. *Berry* smooth, five celled, each cell single seeded.—*Small evergreen under shrubs.*

(See *Menziesia* and *Vaccinium* in Class 8.)

ORDER II. DIGYNIA.—2 *Pistils.*

*** *Perianth single.***

6. SCLERANTHUS, [Page 595.] *Perianth* persistent, with an urceolate tube, and five toothed limb. *Stamens* inserted into the perianth, often abortive. *Fruit* a single seeded *utricule*, covered with the hardened tube of the perianth.—*Herbaceous plants, with opposite leaves and axillary sessile flowers.*
7. CHRYSOSPLENIUM, [Page 597.] *Perianth* single, four or five-cleft, irregular, somewhat coloured. *Stamens* eight or ten, inserted into the glandular *disk*. *Styles* two, spreading. *Capsule* of one cell, with two beaks at the apex. *Seeds* numerous.—*Small succulent herbs.*

**** *Perianth double, calyx of five segments.***

8. SAXIFRAGA, [Page 598.] *Calyx* of five segments, free, or attached to some part of the ovary. *Corolla* of five petals,

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rarely irregular. *Styles* two, persistent. *Capsule* free, or attached to the calyx, two beaked, two celled, opening between the beaks. *Seeds* numerous, smooth or rough, the receptacle in the middle of the dissepiments.—*Perennial or annual herbaceous plants, flowers paniculated, corymbose or solitary.*

*** *Perianth double, calyx tubular, of one piece.*

9. DIAN'THUS, [Page 616.] *Calyx* tubular, five toothed, with from two to four opposite imbricated *scales* at the base. *Petals* five, contracted at the mouth into a narrow claw. *Stamens* ten. *Styles* two. *Capsule* of one cell. *Seeds* peltate, compressed on one side, concave on the other.
10. SAPONARIA, [Page 621.] *Calyx* tubular, five toothed, naked at the base. *Petals* five, contracted at the mouth into a narrow claw. *Stamens* ten. *Styles* two. *Capsule* of one cell, four valved at the apex. *Seeds* roundish, kidney-shaped.

ORDER III. TRIGYNIA.—3 *Pistils.*

* *Calyx of one piece, tubular.*

11. SILENE, [Page 622.] *Calyx* tubular, often ventricose, five toothed, naked at the base. *Petals* five, clawed, mostly having *scales* at the mouth, and generally notched or bifid. *Stamens* ten. *Stigmas* three. *Capsules* three celled at the base, bursting at the apex with six teeth.

** *Calyx of five pieces.*

12. ALSINE, [Page 631.] *Calyx* five, rarely of four pieces. *Petals* five, rarely four, entire, or slightly notched. *Stamens* ten, some of which are occasionally abortive. *Filaments* subulate. *Styles* three. *Capsules* three valved, of one cell, many seeded.
13. CHERLERIA, [Page 637.] *Calyx* of five pieces. *Petals* five, minute, notched, sometimes wanting. *Stamens* ten, the outer ones opposite, the calyx segments with an emarginate gland at the base. *Styles* three. *Capsules* three valved, of one cell, many seeded.
14. ARENARIA, [Page 638.] *Calyx* of five pieces. *Petals* five, entire, or slightly notched. *Stamens* ten, some of which are occasionally abortive. *Styles* three. *Capsule* six valved, of one cell. *Seeds* numerous.

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15. MOE'HRINGIA, [Page 639.] *Calyx* of four or five pieces
Petals four or five, entire, or slightly notched. *Stamens*
eight or ten. *Styles* two or three. *Capsule* four or six
valved. *Seeds* numerous, with an arilliform appendage.
16. STELLA'RIA, [Page 640.] *Calyx* of five pieces. *Petals*
five, deeply cloven. *Stamens* ten, some of which are occa-
sionally abortive. *Styles* three. *Capsule* opening with
six teeth at the apex. *Seeds* numerous.

(See *Polygonum* in Class 8.)

ORDER IV. PENTAGYNIA.—5 *Styles*.

* *Calyx* of five pieces.

17. MALA'CHIUM, [Page 648.] *Calyx* of five pieces. *Petals*
five, bi-partite or emarginate. *Stamens* ten. *Capsules* of
five valves, the valves at the end bifid.
18. CERAS'TIUM, [Page 649.] *Calyx* of five pieces. *Petals*
five, bi-partite or emarginate. *Stamens* ten. *Capsules*
bursting at the top with ten teeth.
19. SPER'GULA, [Page 655.] *Calyx* of five pieces. *Petals* five,
entire. *Stamens* ten, or by abortion five. *Styles* five.
Capsule of five valves, many seeded.
20. OXA'LIS, [Page 658.] *Calyx* of five pieces. *Petals* five,
often united at the base. *Stamens* ten. *Fil ments* often
slightly united at the base, the five outer ones shorter.
Styles five. *Capsule* five angled, five or ten valved, five
celled. *Seeds* with a fleshy *arillus*.
21. SE'DUM, [Page 661.] *Calyx* of five pieces, often united at
the base. *Petals* five, spreading. *Stamens* ten. *Ovaries*
five, each with a nectariferous scale at the base.
22. UMBILI'CUS, [Page 668.] *Calyx* of five pieces, united a
the base. *Corolla* monopetalous, tubular, five-cleft.
Stamens ten, inserted into the corolla. *Ovaries* five, each
with a nectariferous scale at the base. *Styles* subulate.

** *Calyx* of one piece, tubular.

23. AGROSTEM'MA, [Page 670.] *Calyx* of one piece, tubular,
coriaceous, with five foliaceous segments. *Petals* five,
clawed. *Capsule* of one cell, opening with five teeth at the
apex.
24. LICH'NIS, [Page 671.] *Calyx* of one piece, tubular, five-
toothed. *Petals* five, with scales at the throat. *Capsule*

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of one or partly five celled, opening with five or ten teeth at the apex.

CLASS 11. DODECANDRIA.—12 *Stamens*.

ORDER I. MONOGYNIA.—1 *Pistil*.

1. A'SARUM, [Page 674.] *Perianth* single, campanulate, three or four-cleft, superior. *Stamens* twelve placed upon the ovarium. *Anthers* about the middle of the *filaments*. *Stigmas* radiant, in six lobes. *Capsules* six celled.
 2. LYTH'RUM, [Page 675.] *Calyx* inferior, tubular, with from eight to twelve teeth, alternately smaller and erect. *Petals* from four to six, inserted into the calyx tube. *Stamens* equal, or double the number of the petals inserted into the base or middle of the calyx tube. *Capsule* oblong, of two cells, many seeded.
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ORDER II. DIGYNIA.—2 *Pistils*.

3. AGRIMO'NIA, [Page 676.] *Calyx* turbinate, the limb five-cleft, surrounded with rigid hooked bristles. *Petals* five, inserted upon the calyx. *Stamens* seven to twenty, inserted upon the calyx. *Fruit* one or two small membranous *nuts*, inclosed in the indurated tube of the calyx.
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ORDER III. TRIGYNIA.—3 *Pistils*.

4. RESE'DA, [Page 678.] *Calyx* persistent, of one piece, many partite. *Petals* more or less divided, and unequal. *Stamens* ten to twenty. *Capsule* three or six angled, bursting at the apex. *Seeds* numerous, kidney-shaped.

(See *Euphorbia* in Class 21.)

(TETRAGYNIA.—4 *Pistils*.)

(See *Tormentilla* in Class 12.)

ORDER IV. DODECAGYNIA.—12 *Pistils*.

5. SEMPERVIVUM, [Page 681.] *Calyx* six to twelve-cleft. *Petals* six to twelve. *Stamens* twice as many as there are petals. *Ovaries* as many as there are petals.
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CLASS 12. ICOSANDRIA.—(20 or more Stamens
placed upon the calyx.)

ORDER I. MONOGYNIA.—1 Pistil.

1. PRU'NUS, [Page 682.] *Calyx* five-cleft, inferior. *Petals* five. *Fruit* a persistent fleshy *drupe*, covered with a blue powder or bloom, *nut* smooth, having a slightly elevated seam.—*Leaves convolute, flowers solitary, on a pedicle subumbellated or fasciculated.*
2. CERA'SUS, [Page 684.] *Calyx* five-cleft, inferior. *Petals* five. *Fruit* a persistent smooth fleshy *drupe*, globose, or umbelicated at the base, and without any bloom on the surface, *nut* smooth, sub-globose.—*Leaves conduplicate.*

ORDER II. PENTAGYNIA.—5 Pistils (but variable.)

* *Flowers complete, superior.*

3. MESPI'LUS, [Page 687.] *Calyx* five-cleft, foliaceous. *Petals* five. *Disk* large. *Styles* two to five, smooth. *Fruit* turbinate, the area at the apex much dilated, and exposing the hardened ends of the cells.—*Trees with serrated undivided leaves and solitary flowers.*
4. CRATÆ'GUS, [Page 688.] *Calyx* five-cleft, with acute segments. *Petals* five. *Styles* one to five. *Fruit* oval or round, the apex closed over the ends of the cells.—*Trees or shrubs, with lobed leaves and cymose flowers.*
5. COTONEAS'TER, [Page 690.] *Calyx* with five short teeth. *Petals* five, small, erect. *Stamens* erect. *Fruit* turbinate, with the nuts adhering to the inside of the fleshy calyx, but the ends free.
† *Bushes with entire leaves, woolly beneath, and cymose flowers.*
6. PY'RUS, [Page 691.] *Calyx* with five segments. *Petals* five, roundish. *Styles* two to five. *Fruit* (*pomum* apple) fleshy, with from two to five two seeded cartilaginous cells.—*Trees with serrated undivided or pinnated leaves and cymose flowers.*

** *Flowers complete, inferior.*

7. SPIRÆ'A, [Page 697.] *Calyx* five-cleft, persistent. *Petals* five. *Fruit* of from one to twelve *capsules*, two valved, and from two to four seeded.

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ORDER III. POLYGYNIA.—*Many Pistils.*

* *Calyx five to ten-cleft, the segments equal.*

8. RO'SA, [Page 699.] *Calyx* urn-shaped, limb of five segments, tube fleshy, the apex constricted into a ring or glandular disk. *Petals* five, and with the stamens inserted before the disk. *Carpels* numerous, bristly, inclosed in the calyx tube.
9. RU'BUS, [Page 719.] *Calyx* five-cleft, persistent. *Petals* five. *Carpels* numerous, drupaceous, single seeded, inserted in a hemispherical or conical fleshy *receptacle*.
10. DRY'AS, [Page 732.] *Calyx* eight to ten-cleft, persistent. *Petals* five to eight. *Carpels* numerous, persistent, inserted into a dry cellular *receptacle*. *Styles* lateral, simple, with feathery *stigmas*.

** *Calyx eight to ten-cleft, the segments alternately smaller.*

11. GE'UM, [Page 733.] *Calyx* ten-cleft, five outer alternate segments smaller, patent. *Petals* five. *Carpels* numerous, smooth or hairy, inserted into a dry elongated *receptacle*, and terminated by the elongated *style*, hooked at the extremity, and jointed about the middle.
12. FRAGA'RIA, [Page 735.] *Calyx* ten-cleft, five outer alternate segments smaller, patent. *Petals* five. *Carpels* numerous, small, inserted into a fleshy succulent *receptacle*. *Styles* lateral, deciduous.
13. CO'MARUM, [Page 737.] *Calyx* ten-cleft, five outer alternate segments smaller, patent. *Petals* five. *Carpels* numerous, small, inserted into a large dry spongy *receptacle*. *Styles* lateral, deciduous.
14. POTENTIL'LA, [Page 738.] *Calyx* eight or ten-cleft, the four or five outer alternate segments smaller. *Petals* four or five. *Carpels* numerous, small, inserted into a small dry *receptacle*.

CLASS 13. POLYANDRIA.—*Many Stamens, inserted upon the receptacle.*

ORDER I. MONOGYNIA.—*1 Pistil.*

* *Corolla of four petals.*

1. PAPA'VER, [Page 747.] *Calyx* of two caducous pieces. *Petals* four. *Stigma* sessile, radiated, with from four to twenty

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rays. *Capsule* superior, of from four to twenty imperfect cells, formed by projecting *receptacles* beneath the stigmas. *Seeds* numerous, small, escaping by pores beneath the persistent stigma.

2. MECONOP'SIS, [Page 754.] *Calyx* of two caducous pieces. *Petals* four. *Stigma* slightly elevated, of few rays. *Capsule* opening at the top by from four to six valves. *Seeds* numerous, small, attached to filiform *receptacles*.
3. GLAU'CIIUM, [Page 755.] *Calyx* of two caducous pieces. *Petals* four. *Stigma* two lobed. *Capsule* a long linear two celled two valved *pod*. *Seeds* numerous, dotted, attached to an intervalvular receptacle.
4. CHELIDO'NIUM, [Page 757.] *Calyx* of two caducous pieces. *Petals* four. *Stigma* two lobed. *Capsule* a linear one, celled, two valved *pod*. *Seeds* numerous, crested.
5. ACT'ÆA, [Page 758.] *Calyx* of four caducous pieces. *Petals* four. *Fruit* a one celled many seeded *berry*.

** *Corolla of five petals.*

6. HELIAN'THEMUM, [Page 759.] *Calyx* of five pieces, the two outer ones unequal or wanting. *Petals* five. *Stigma* capitate. *Capsule* three valved.
7. TI'LIA, [Page 763.] *Calyx* of five deciduous pieces. *Petals* five. *Fruit* coriaceous, five celled, each cell two seeded.

*** *Corolla of numerous petals.*

8. NYMPH'ÆA, [Page 766.] *Calyx* of four or five pieces. *Petals* numerous, and as well as the stamens inserted upon the germen. *Berry* many celled, many seeded.
9. NU'PHAR, [Page 767.] *Calyx* of five or six pieces. *Petals* numerous, with a nectariferous opening at the back, and as well as the stamens inserted upon the receptacle. *Berry* superior, many celled, many seeded.

ORDER II. PENTAGYNIA.—*Pistils variable, from two to six.*

* *Flowers irregular.*

10. DELPHI'NIUM, [Page 769.] *Calyx* petaloid, of five coloured pieces, irregular, the upper piece spurred at the base. *Petals* four, the whole or mostly the two upper ones only with appendages at the base, and included within the spur of the calyx.

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11. ACONITUM, [Page 770.] *Calyx* petaloid, of five coloured pieces, irregular, the upper segment helmet-shaped. *Petals* five, the two upper ones on long claws, nectariferous, and concealed within the calyx, the others small, linear. *Capsules* from two to six, many seeded.

*** Flowers regular, petals plane.*

12. PÆONIA, [Page 772.] *Calyx* persistent, of five unequal pieces. *Petals* five, or many. *Stigmas* ligulate. *Capsules* two to five, one celled, many seeded.

**** Flowers regular, petals nectariferous.*

13. HELLEBORUS, [Page 773.] *Calyx* persistent, of five pieces. *Petals* eight to ten, small, tubular, bilabiate, nectariferous. *Capsules* two to six, one celled, many seeded.

14. AQUILEGIA, [Page 775.] *Calyx* deciduous, of five coloured petaloid pieces. *Petals* five, prolonged at the base into a horn-shaped spur. *Capsules* three to five.

***** Flowers within a spathe, sometimes diœcious.*

15. STRATIOTES [Page 776.] *Spatha* of two pieces. *Calyx* three-cleft. *Petals* three. *Styles* six, bifid. *Berry* hexagonal, six celled, many seeded.

ORDER III. POLYGYNIA.—Many Pistils.

a. *Capsules many seeded.*

16. TROLLIUS, [Page 777.] *Calyx* petaloid, of from five to many deciduous pieces. *Petals* five or more, small, linear, with a nectariferous depression above the claw. *Capsules* numerous, sessile, many seeded follicles.

17. CALTHA, [Page 778.] *Calyx* petaloid, of from five to many deciduous pieces. *Petals* wanting. *Capsules* numerous, compressed, spreading, many seeded.

b. *Capsules small, single seeded, nut-like.*

** Calyx petaloid, corolla wanting.*

18. THALICTRUM, [Page 779.] *Calyx* petaloid, of four or five pieces. *Corolla* wanting. *Capsules* single seeded, without awns.

19. CLEMATIS, [Page 781.] *Calyx* petaloid, of four or five pieces. *Corolla* wanting. *Capsules* single seeded, terminated by a long mostly feathery awn.

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20. ANEM'ONE, [Page 782.] *Calyx* petaloid, of five or many pieces. *Corolla* wanting. *Capsules* single seeded, inserted into a thickened hemispherical receptacle. *Involucre* more or less remote from the flower.
- ** *Calyx* of five pieces. *Corolla* of five to ten petals.
21. ADON'IS, [Page 785.] *Calyx* of five pieces. *Petals* five to ten, the claw without a nectariferous gland. *Capsules* small, single seeded.
22. RANUN'ULUS, [Page 786.] *Calyx* of three to five pieces. *Petals* five to many, the claw with a nectariferous gland, naked, or furnished with a scale. *Carpels* numerous, ovate, sub-compressed with a mucronated apex, smooth, striated, tuberculated, or spinous and collected into a head.

CLASS 14. DIDYNAMIA.—14 *Stamens, two longer than the other two.*

ORDER I. GYMNOSPERMIA.

Fruit four, angular, nut-like, single seeded, capsules with the style in the middle at the bottom of the calyx. Nat. Ord. LABIATÆ. Juss.

TRIBE I. MENTHOIDÆ. Benth. Lab. *Corolla* sub-campanulate or funnel-shaped, the limb four or five-cleft, nearly regular. *Stamens* distant, straight.

1. MENTHA, [Page 797.] *Calyx* equal, five toothed, its mouth naked, or rarely villous. *Corolla* funnel-shaped, the limb four-cleft, nearly equal, the upper segment emarginate, its tube short. *Stamens* distant. *Anthers* with parallel cells. *Filaments* naked.

TRIBE II. SATUREINÆ. Benth. Lab. *Corolla* two lipped, the upper one nearly plane. *Stamens* distant, and either spreading or curved beneath the upper lip of the corolla.

2. THY'MUS, [Page 804.] *Flowers* in whorled capitate racemes. *Calyx* tubular, ten ribbed, two lipped, the upper lip three toothed, the lower one bifid, throat hairy. *Corolla* with the upper lip straight, notched, the lower trifid, tube naked.
3. ORI'GANUM, [Page 805.] *Flowers* in angular spicated whorls, imbricated with bracteas. *Calyx* five toothed, or obliquely cut, or entire. *Corolla* with the upper lip straight, notched, the lower trifid, tube naked.

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4. CALMIN'THA, [Page 806.] *Flowers* solitary or numerous, in corymbose axillary whorls. *Calyx* tubular, thirteen ribbed, cylindrical, or swollen at the base, two lipped, the upper three toothed, the lower bifid, the throat mostly hairy. *Corolla* with the upper lip nearly plane, the lower one trifid, the middle lobe notched.

5. CLINOPO'DIUM, [Page 808.] *Flowers* numerous, in whorls, accompanied with linear *bracteas*, forming a sort of *involucre*. *Calyx* tubular, thirteen ribbed, nearly equal at the base, two lipped, the upper three toothed, the lower bifid. *Corolla* with the upper lip nearly plane, notched, the lower one trifid, the middle lobe notched.

TRIBE III. NEPETÆ. *Benth. Lab. Corolla two lipped, the upper one bifid. Stamens close together, parallel beneath, the upper lip of the corolla sometimes after flowering deflexed, the upper ones longest.*

6. NEP'ETA, [Page 809.] *Calyx* tubular, five toothed, many ribbed. *Corolla* with the upper lip plane, bifid, the lower three-cleft, the lateral lobes reflexed, the middle one round, crenated, and concave.

7. GLECHO'MA, [Page 810.] *Calyx* tubular, five toothed, many ribbed. *Corolla* with the upper lip plane, bifid, the lower three-cleft, the middle lobe obcordate, plane. *Stamens* with the *anthers* disposed in pairs, forming a cross.

TRIBE IV. STACHY'DÆA. *Benth. Lab. Corolla two lipped, the upper one entire, or notched. Stamens close together, parallel beneath the upper lip of the corolla, sometimes after flowering deflexed, the lower ones longest. Calyx with the teeth straight when in fruit.*

a. *Calyx* toothed, equal, or nearly so, not two lipped.

* *Stamens longer than the tube of the corolla.*

8. LA'MIUM, [Page 811.] *Calyx* campanulate, ten ribbed, with five nearly equal teeth. *Corolla* with the upper lip entire, arched, the lower one mostly with one or two teeth on each side at the base, the tube with the throat inflated, and encircled with a hairy ring inside near the base.
9. GALEOB'DOLON, [Page 815.] *Calyx* campanulate, five ribbed, nearly equal, five toothed. *Corolla* with the upper lip incurved, arched, entire, the lower one much smaller, in three acute lobes, the tube with a hairy ring.

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10. GALEOP'SIS, [Page 815.] *Calyx* campanulate, equal, with five bristle pointed teeth. *Corolla* with the throat inflated, the upper lip arched, the lower of three unequal lobes, having two teeth on the upper side, the middle lobe obtuse or emarginate. *Anthers* opening with valves.
11. BETO'NICA, [Page 818.] *Calyx* ovate, ten ribbed, with five awned teeth. *Corolla* cylindrical, the tube long, upper lip concave, the lower three-cleft, spreading, the middle lobe obtuse.
12. STA'CHYS, [Page 819.] *Calyx* sub-campanulate, ten ribbed, with five nearly equal teeth. *Corolla* with the upper lip concave, entire, the lower one three-cleft, the two lateral ones reflexed, the middle one obovate or obcordate, the tube with a hairy ring inside.
13. BALLO'TA, [Page 824.] *Calyx* salver-shaped, ten ribbed with five broad bristle-pointed teeth. *Corolla* with the upper lip concave, the lower three-cleft, the middle lobe obcordate, the tube with a hairy ring internally.
14. LEONU'RUS, [Page 825.] *Calyx* ovate, five or ten ribbed, with five spreading awned teeth. *Corolla* with the upper lip concave, very hairy, the lower one three-cleft, or entire, acute, the tube with a hairy ring internally.
** *Stamens shorter than the tube of the corolla.*
15. MARRU'BIUM, [Page 826.] *Calyx* with ten ribs, and five or ten awned teeth, spreading when in fruit, the throat hairy. *Corolla* with the upper lip straight, cloven, the lower one reflexed, three lobed, the middle lobe largest, emarginate. *Nuts* with the end triangular, truncated.

b. *Calyx two lipped.*

16. MELIT'TIS, [Page 827.] *Calyx* large, campanulate, upper lip two or three toothed, the lower with two ovate lobes. *Corolla* with the upper lip nearly flat, entire, the lower one of three nearly equal ovate lobes. *Anthers* in pairs, disposed in a cruciform manner.

TRIBE V. SCUTELLARINEÆ. Benth. Lab. *Corolla two lipped. Stamens close together, parallel beneath the upper lip of the corolla. Corolla two lipped, closely compressed over the fruit, the upper lip entire, or of three short teeth.*

17. SCUTELLA'RIA, [Page 828.] *Calyx* two lipped, the lips entire, closed after flowering, having concave scale on the

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upper side. *Corolla* with a long tube, the upper lip concave, three cleft, the lower one trifid.

18. PRUNELLA, [Page 829.] *Calyx* two lipped, closed after flowering, the upper one flat, three toothed, the lower narrower, bifid. *Corolla* with the upper lip concave, nearly entire, the lower of three obtuse lobes.

TRIBE VI. AJUGOIDEÆ. *Benth. Lab. Corolla with the upper lip apparently wanting, or very short. Nuts rough, with reticulations.*

19. AJUGA, [Page 830.] *Calyx* nearly equal, five cleft. *Corolla* with the upper lip very short, entire, or bifid, the lower of three lobes, much larger. *Stamens* close, ascending above the upper lip.
20. TEUCRIUM, [Page 832.] *Calyx* tubular, two lipped, or five toothed. *Corolla* with the upper lip bi-partite, the lower of three lobes. *Stamens* much protruded between the lobes of the upper lip.

ORDER II. ANGIOSPERMIA.—Fruit a capsule, containing one or more seeds.

A. *Anthers pointed or spurred at the base.*

* *Capsule of one cell, many seeded.*

21. OROBANCHE, [Page 835.] *Calyx* four cleft, or of two pieces, often bifid. *Corolla* ringent, four or five cleft, fleshy and glandular in the lower part. *Stigma* capitate. *Capsule* one celled, two valved, many seeded, *placentas* lateral opposite.—*Brown or purplish (rarely green) herbaceous plants, with leaves reduced to scales.*
22. LATHRÆA, [Page 841.] *Calyx* campanulate. *Corolla* tubular, two lipped. *Germen* with a depressed gland at the base. *Stigma* notched. *Capsule* one celled, two valved, many seeded, *placentas* spongy in the middle of the valves.—*Colourless herbaceous plants, with leaves reduced to scales.*

** *Capsule of two cells, one to many seeded.*

† *Calyx of five teeth, or irregular.*

23. PEDICULARIS, [Page 842.] *Calyx* tubular, or inflated, five cleft, or unequally lobed, or jagged and leafy. *Corolla* with the upper lip laterally compressed and arched, the

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lower plane three lobed. *Capsule* oblique, compressed, two celled. *Seeds* angular, rough, and reticulated.

†† *Calyx* of four teeth.

24. RHINAN'THUS, [Page 844.] *Calyx* inflated, four toothed. *Corolla* with the upper lip laterally compressed, the lower plane three lobed. *Capsule* obtuse, compressed, two celled. *Seeds* flat, orbicular, margined.

25. MELAM'PYRUM, [Page 846.] *Calyx* tubular, four toothed. *Corolla* with the upper lip laterally compressed, and the margin rolled back, the lower one trifid. *Capsule* oblong, oblique, two celled, single seeded, opening on one side. *Seeds* gibbous at the base.

26. BART'SIA, [Page 849.] *Calyx* campanulate, four cleft, mostly coloured. *Corolla* ringent, with a contracted mouth, upper lip arched, entire, lower one of three equal reflexed lobes. *Capsule* ovate, compressed, two celled. *Seeds* numerous, compressed, and unequally ribbed.

27. EUPHRA'SIA, [Page 851.] *Calyx* tubular, or campanulate, four toothed. *Corolla* with the upper lip divided, the lower one of three nearly equal lobes. *Capsule* ovate oblong, obtuse, or emarginate, two celled. *Seeds* numerous, equally striated.

B. *Anthers* not pointed or spurred at the base.

* *Capsule* of one cell.

28. LIMOSILLA, [Page 853.] *Calyx* five cleft, equal. *Corolla* campanulate, five cleft, equal. *Stamens* nearly equal, with the cells of the anthers united. *Stigma* capitate. *Capsule* globose, one celled, with a central placenta.

** *Capsule* of two cells.

29. SCROPHULARIA, [Page 854.] *Calyx* five lobed, or deeply cleft. *Corolla* sub-globose, the limb five lobed, small, the lower lobe reflexed, and frequently beneath the upper is a small scale (abortive stamen). *Capsule* two celled, two valved, with the margins turned inwards.

30. ANTIRRHINUM, [Page 858.] *Calyx* five partite. *Corolla* personate, swollen on one side at the base (not spurred), its mouth closed by a prominent swollen palate, upper lip bifid, the lower three cleft. *Capsule* two celled, oblique, opening by three pores at the apex.

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31. LINA'RIA, [Page 859.] *Calyx* five partite. *Corolla* personate, spurred at the base, its mouth closed by a prominent swollen palate, upper lip bifid, the lower three cleft. *Capsule* two celled, opening at the apex with entire or toothed valves.
32. DIGITA'LIS, [Page 864.] *Calyx* in five unequal segments. *Corolla* campanulate, the limb oblique, of four or five unequal lobes, the upper one emarginate. *Stamens* inserted into the base of the corolla. *Capsule* ovate, of two cells, two valved, with the margins inflexed.
33. SIBTHORP'IA, [Page 866.] *Calyx* in five deep spreading segments. *Corolla* rotate, five cleft, two lower segments narrowest. *Capsule* sub-orbicular, compressed, two celled, two valved.
 *** *Capsule of three cells.*
34. LINNÆ'A, [Page 867.] *Calyx* five cleft, superior, nearly equal. *Corolla* campanulate, five cleft, equal. *Style* bent. *Stigma* globose. *Fruit* a dry three celled berry, each cell with a single pendulous seed. *Involucre* of from two to four pieces beneath the germin.
 **** *Capsule of four cells.*
35. VERBE'NA, [Page 868.] *Calyx* tubular, five cleft, mostly unequal. *Corolla* tubular, with a spreading sublobate five cleft limb. *Stamens* included (sometimes by abortion only two). *Fruit* four nuts.

CLASS 15. TETRADYNAMIA.—*Six Stamens, four long and two short.*—(Nat. Ord. CRUCIFERÆ, JUSS.)

ORDER I. SILICULOSA.—*Fruit a short pod or pouch.*

A. *Silicula turgid, hard, nut-like, two jointed.*

1. CRAM'BE, [Page 870.] *Silicula* two jointed, indehiscent, one celled, the lower joint abortive, resembling a pedicle, the upper globose, one seeded. *Seeds* round, pendulous from the end of the long filiform curved funiculus. *Cotyledons* thick, conduplicate, deeply emarginate. 

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2. CAK'LE, [Page 874.] *Silicula* two jointed, angular, indehiscent, one celled, one seeded, the lower joint obovate, the upper compressed, crowned by the sessile stigma. *Seed* solitary in each cell, the lower one pendulous, the upper erect. *Cotyledons* linear, accumbent. ○=
- B. *Silicula* laterally compressed, with keeled or winged margins.
3. ISA'TIS, [Page 875.] *Silicula* oblong, laterally compressed, one celled, of two keeled valves, one seeded. *Seed* with the *cotyledons* incumbent. ○||
4. SENE'IE'RA, [Page 876.] *Silicula* two lobed (didyma), laterally compressed, entire or notched at the apex, two celled, each cell single seeded. *Seeds* roundish, with linear incumbent *cotyledons*. ○||
5. LEPID'IUM, [Page 877.] *Silicula* ovate, or subcordate, of two one seeded cells, valves keeled or winged at the back. *Petals* equal. *Filaments* simple. *Seeds* sub-compressed. *Cotyledons* plane, incumbent. ○|| *Flowers* white, in terminal racemes.
6. THLAS'PI, [Page 880.] *Silicula* laterally compressed, the apex notched, of two or many seeded cells, valves keeled or winged at the back. *Calyx* equal at the base. *Petals* equal. *Filaments* simple. *Cotyledons* accumbent. ○= *Flowers* white.
7. CAPSEL'IA, [Page 882.] *Silicula* laterally compressed, triangular, wedge-shaped, of two or many seeded cells, valves sharply keeled. *Filaments* simple. *Cotyledons* incumbent. ○|| *Flowers* white.
8. HUTCHIN'SIA, [Page 883.] *Silicula* laterally compressed, elliptical, entire, of two cells, two seeded, valves keeled, and opening at the back. *Calyx* and *petals* equal. *Filaments* simple. *Cotyledons* accumbent. ○=
9. TEESDA'LIA, [Page 884.] *Silicula* laterally compressed, roundish ovate, emarginate, of two cells, two seeded, valves keeled. *Filaments* with a scale at the base. *Cotyledons* accumbent. ○= *Flowers* white.
10. IBE'RTIS, [Page 884.] *Silicula* laterally compressed, truncate emarginate, of two cells, one seeded, valves keeled and winged. *Petals* unequal. *Filaments* simple. *Seeds* ovate, pendulous. *Cotyledons* accumbent. ○=

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C. *Silicula* sub-globose, or ovate, with turgid or convex valves.

11. KO'NIGA, [Page 885.] *Silicula* sub-ovate, with nearly plane valves, two celled, one seeded. Seeds mostly with a margin. Cotyledons accumbent. ○= Calyx patent. Petals entire. Hypogynous glands eight. Filaments simple.
12. DRA'BA, [Page 886.] *Silicula* oval or oblong, with plane or sub-convex valves, two celled, many seeded. Seeds not with a margin. Cotyledons accumbent. ○= Calyx equal. Petals entire, or bifid. Filaments simple.
13. COCHLEA'RIA, [Page 890.] *Silicula* oval, or sub-rotundate, with very convex or turgid valves. Seeds mostly without a margin. Calyx equal. Petals entire. Filaments simple. Cotyledons accumbent. ○=
14. CAMELI'NA, [Page 893.] *Silicula* obovate, or sub-globose, with very convex valves, the point terminating in a linear process. Seeds numerous, oblong. Cotyledons incumbent. ○|| Filaments simple. Style filiform.
15. SUBULA'RIA, [Page 895.] *Silicula* oval, pointless, with turgid valves. Seeds numerous. Cotyledons linear, biplicate. ○||||| Stigma sessile.

ORDER II. SILIQUOSA.—Fruit a long narrow pod.

A. Stigma of two lobes, erect.

16. MATTHI'OLA, [Page 896.] *Siliqua* linear, roundish, or compressed. Stigma of two lobes, erect, thickened at the back, or pointed at the base, connivent. Calyx bisaccate at the base, erect. Filaments dilated. Seeds compressed. Cotyledons plane, accumbent. ○=
17. HES'PERIS, [Page 898.] *Siliqua* linear, rounded, or angular. Stigma of two erect flat connivent lobes. Calyx erect, bisaccate at the base. Seeds oblong, slightly angular. Cotyledons incumbent. ○||

B. Stigma obtuse or emarginate, or of two obtuse lobes.

1. *Siliqua* with the valves separating.

* Valves one, three, or five ribbed.

a. Cotyledons accumbent. ○=

18. CHERIAN'THUS, [Page 899.] *Siliqua* linear, compressed, or quadrangular from each valve, having a prominent

SYNOPSIS OF THE GENERA.

dorsal rib. *Stigma* of two recurved lobes. *Calyx* erect, with the opposite pieces swollen at the base. *Seeds* ovate, compressed. *Cotyledons* accumbent.

19. BARBARE'A, [Page 901.] *Silique* linear, round, the *valves* with a prominent longitudinal rib or vein. *Calyx* erect, equal at the base. *Stigma* obtuse, entire, or emarginate. *Cotyledons* accumbent.

20. ARA'BIS, [Page 902.] *Silique* linear, *valves* flat, or convex, with a longitudinal rib or vein. *Calyx* erect. *Stigma* obtuse, entire, or sub-emarginate. *Seeds* oval or orbicular, compressed. *Cotyledons* accumbent.

21. TURRI'TIS, [Page 905.] *Silique* linear, with ribbed or keeled *valves*. *Stigma* obtuse, entire, or slightly emarginate. *Seeds* in a double row. *Cotyledons* accumbent.
b. *Cotyledons* flat, accumbent. ○||

22. SISYM'BRIUM, [Page 906.] *Silique* linear, round, or angular, *valves* with three longitudinal ribs. *Stigma* obtuse, entire, or emarginate. *Calyx* equal at the base. *Seeds* ovate, or oblong. *Cotyledons* flat, incumbent.

23. ERY'SIMUM, [Page 909.] *Silique* linear, quadrangular. *Stigma* obtuse, entire, or emarginate. *Calyx* erect. *Seeds* with flat oblong incumbent *cotyledons*.

c. *Cotyledons* incumbent, deeply channeled, or conduplicate. ○>>

24. BRAS'SICA, [Page 910.] *Silique* linear, or oblong, with convex *valves*, having a longitudinal dorsal rib, and sometimes with lateral branched veins. *Calyx* erect. *Seeds* globose. *Cotyledons* incumbent, channeled, conduplicate.

25. SINA'PIS, [Page 916.] *Silique* linear, or oblong, with convex *valves*, having three or five longitudinal ribs. *Calyx* spreading. *Seeds* globose. *Cotyledons* incumbent, channeled, conduplicate.

26. DIPLTAX'IS, [Page 920.] *Silique* linear, or linear lanceolate, *valves* convex, with a longitudinal rib. *Calyx* spreading. *Seeds* ovate, or oblong, compressed. *Cotyledons* incumbent, channeled, conduplicate.

** *Valves* without ribs, or only slightly ribbed at the base.

27. DENTA'RIA, [Page 921.] *Silique* linear lanceolate, *valves* flat, ribless. *Seeds* ovate, attached by a dilated cord. *Cotyledons* accumbent. ○=

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28. *CARDAMINE*, [Page 922.] *Siliqua* linear lanceolate, valves flat, rib- less, separating elastically. *Seeds* ovate, attached by a slender cord. *Cotyledons* flat, accumbent. ○=
29. *NASTURTIUM*, [Page 926.] *Siliqua* nearly cylindrical, linear. *Stigma* sub-bilobate. *Calyx* equal at the base, spreading. *Seeds* small. *Cotyledons* accumbent. ○=
2. *Siliqua with the valves permanently closed.*
30. *RAPHANUS*, [Page 928.] *Siliqua* linear, oblong, or sub-conical, smooth, and inseparable, or beaded and separating at the joints, many seeded. *Seeds* round, pendulous. *Cotyledons* conduplicate. >> *Calyx* erect.
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525

Berberis vulgaris.



526

Frankenia laevis.



527

Frankenia pulverulenta.



528

Peplis portula



529

Leucojum aestivum.



530

Galanthus nivalis.

CLASS VI.

HEXANDRIA. 6 STAMENS (*equal.*)

ORDER I.

MONOGYNIA. 1 PISTIL.

GENUS I. BERBERIS.—LINN. *Barberry.*

Nat. Ord. BERBERIDEÆ. VENT.

GEN. CHAR. *Calyx* of six coloured concave pieces, the outer ones scaly. *Petals* six, each with two glands at the base. *Fruit* a two or three seeded fleshy berry.—Name, *Berbèrys*, according to *du Théis*, is the common Arabic name of the fruit of this plant.

1. *B. vulgaris*, Linn. (Fig. 525.) *Common Barberry.* Spines three-cleft; leaves obovate oblong, with bristly serratures; racemes pendulous, many flowered; petals entire.

English Botany, t. 49.—English Flora, vol. ii. p. 184.—Hooker, British Flora, vol. i. p. 157.—Lindley, Synopsis, p. 14.

A shrub, from four to six feet high, with slender angular upright stems, clothed with a pale grey smoothish bark; the wood yellow, brittle. Spines alternate, stout, straight, three-cleft, dilated at the base, and from their axis arise the fascicule of leaves and the flowers. Leaves obovate, oblong, tapering into a footstalk, of a yellowish green and smooth above, a pale glaucous green beneath, smooth or scattered over with hairs, and with a prominent mid-rib and reticulated veins, the margins serrato-ciliated, with pale bristles pointed forwards. Inflorescence a stalked axillary raceme, of numerous pale yellow flowers hanging pendent from amidst the tuft of leaves, each flower on a slender pedicle, from the axis of a small lanceolate bractea, of a faint oppressive smell. Calyx of six yellow pieces, the outer ones somewhat scaly. Petals six, oblong, obtuse, each having at its base two oblong prominent red glands on each side of the short claw. Stamens about as long as the petals, and opposite to them. Filaments flat. Anthers of two separate cells, opening elastically. Stigmas orbicular. Fruit a one celled berry, oblong, slightly curved, crowned by the obtuse black stigmas, of a fine scarlet colour, containing an acidulated pulp, and two, sometimes three seeds, oblong, cylindrical, erect, attached laterally to the bottom of the cell, its covering crustaceous, and albumen fleshy.

Habitat.—Copses, woods, and hedges; not uncommon in England and Scotland; Ballyarthur, near Fermoy, Ireland.—*Mr. J. Drummond*. Shrub; flowering in June.

The Barberry, well known as an ornamental shrub in our hedges and shrubberies, is found wild in all parts of Europe. Sometimes by cultivation, as well as in the wild state, (especially in Italy), it attains the port and appearance of a tree, growing to the size of the common plum. Numerous varieties of it are enumerated, but these are chiefly in the colour of the fruit, as the *lutea*, yellow fruited; *violacea*, violet fruited; *purpurea*, purple fruited; *nigra*, the black fruited; *alba*, the white fruited; *asperma*, fruit without seeds.

The bark and wood is of a yellow colour, said to be used by dyers in producing a beautiful yellow tint, and the bark especially abounds in an astringent principle, on which account it is used in Poland for the purposes of tanning leather. The fruit contains a considerable quantity of acid, which is the oxalic, rendering it so sour, that few or no birds will eat it from choice. Boiled with sugar it forms an excellent dessert preserve or jelly, and pickled with vinegar is used for garnishing dishes, &c.; bruised, and boiling water poured upon it, makes a pleasant drink useful in fevers; but the use of the fruit, as well as the bark, in the cure of many diseases, is not now so highly esteemed as formerly.

The Barberry is remarkable from the circumstance of the curious elasticity of the filaments, which, upon the slightest irritation, suddenly contract and throw the pollen from the anthers upon the stigmas, and in a short time they recover their former elasticity, and are again sensible to the application of any irritating cause; and this curious example of irritability may be repeated several times in the same flower, so that insects attracted either by the odour of the flowers, or the glowing colour of the glands at the base of the filaments, are the unconscious cause of an occurrence in the wise ordination of which barrenness seems almost impossible.

The spines of the Barberry are also remarkable examples of the conversion of leaflets into prickles by the absorption of the parenchyma of the leaf and the induration of the mid-ribs.

A belief has prevailed that the Barberry is productive of barrenness in all plants growing near it, or even within three or four hundred yards of its place of growth, and on this account it is in many places objected to in hedge rows, &c. We have not ourselves observed any such property in this plant, and it would indeed be an extraordinary thing if, that while there is such a wonderful provision to procure fecundity in the plant itself, it should have the power of depriving it in others. We have, however, reason to believe that the prejudice against this shrub is now much diminished; and it is not improbable, as observed in Vol. v. Part 2 of English Flora, p. 372, that it is from the Barberry bushes being frequently infested with a minute

fungus, *Æcidium Berberides*, Pers., that it is supposed to be the cause of its blighting wheat. Not unfrequently may be found also infesting the leaves of the Barbery another minute fungus, which spreads over their surface like a pellicle of woolly filaments, of a grey colour, *Erysiphe pencillata*; it is an extremely interesting and curiously constructed species, and upon the bark of the stems and branches may be observed very frequently other species of minute fungi.

Nearly allied to this genus is that of *Mahonia*, consisting of elegant low hardy shrubs, with compound evergreen leaves, and mostly bearing a profusion of yellow flowers, rendering them great favourites in ornamental pleasure grounds and cold borders. They are found for the most part in the Eastern part of North America, or, according to De Candolle, in both hemispheres between 25 and 45 degrees latitude.

GENUS II. FRANKEN'IA.—LINN. *Sea-Heath*.

Nat. Ord. FRANKEN'IACEÆ. ST. HILDIRE.

GEN. CHAR. *Calyx* tubular, four or five-cleft. *Petals* five. *Stigmas* three-cleft. *Capsule* of one cell, from two to four valved. *Seeds* minute, attached to the margin of the valves.—Named in honour of John Franken, a Swedish Botanist, and Professor of Medicine at Upsal, who died in 1661.*

1. *F. larvis*, Linn. (Fig. 526.) *Smooth Sea Heath*. Leaves in whorled clusters, linear, smooth, the margins revolute, ciliated at the base.

English Botany, t. 205.—English Flora, vol. ii. p. 186.—Hooker, British Flora, vol. i. p. 157.—Lindley, Synopsis, p. 39.

Root woody, fibrous. *Stems* round, smooth, wiry, procumbent, and spreading around the branches, numerous, opposite, axillary, round, smooth, or downy, especially towards the extremities. *Leaves* numerous, in crowded whorled panicles, linear, ovate, somewhat fleshy, smooth, the margins rolled back and glaucous beneath, the footstalk broad, membranous, the two lower ones opposite, united and forming a fringed sheath or cup around the stem, and from the bosom of which arise the branches and fascicles of leaves and flowers. *Inflorescence*

* "This genus," it is stated in English Botany, "was first determined by Micheli, who named it *Francu*, after his friend Franchi, a Florentine physician and botanist, born at Lucca, who had a principal hand in founding the Botanical Society of Florence. It should seem that Linnæus did not think this gentleman's claims to such an honour sufficient, and, therefore, changed the name to *Frankenia*, to perpetuate the memory of Frankenius, Professor at Upsal, in the middle of the last century, author of a not very useful catalogue of plants, called *Speculum Botanicum*, of which there are two editions, both at present very rare."

terminal or axillary. *Flowers* solitary, sessile, of a pale pink. *Calyx* tubular, four or five-cleft, with four or five pale hard ridges and downy intermediate furrows, persistent, regular. *Corolla* of five petals, with claws as long as the calyx, and an obovate spreading limb, each with a channeled membranous appendage at its base. *Stamens* with slender *filaments* as long as the tube. *Anthers* yellow, roundish, ovate, of two cells bursting laterally. *Styles* slender, as long as the stamens. *Stigmas* of three oblong spreading lobes, downy above. *Capsule* ovate, or somewhat three cornered, one celled, three valved, enveloped in the calyx. *Seeds* numerous, small, attached to the margins of the valves.

Habitat.—Muddy salt marshes, chiefly on the Eastern Coast of England; Isle of Sheppey, Kent.—*Rev. Prof. Henslow*.

Perennial; flowering in July.

2. *F. pulverulenta*, Linn. (Fig. 527.) *Powdery Sea Heath*. Leaves whorled, obovate, retuse, petiolated, the margins revolute, smooth above, downy, and pulverulent beneath, and the petioles ciliated.

English Botany, 2222.—English Flora, vol. ii. p. 186.—Hooker, British Flora, vol. i. p. 157.—Lindley, Synopsis, p. 39.

Root small, branched, fibrous. *Stems* numerous, prostrate, repeatedly branched in a forked manner, round, pinkish, and more or less clothed with short downy pubescence. *Leaves* opposite, or in whorls, of about four, ovate, obtuse, with an emarginate extremity, the margins reflexed, paler beneath, and clothed with close down, and pulverulent, smooth above, petiole rather short, ciliated, often with axillary tufts of short leafy branches. *Flowers* axillary, solitary, and terminal, sessile, of a pink colour. *Calyx* tubular, with a short five toothed limb, smooth, with five pink elevated ribs, and five smooth furrows. *Corolla* of five petals, with a roundish ovate limb, and a tapering claw as long as the calyx tube. *Stamens* with awl-shaped *filaments*, as long as the tube. *Anthers* small, two celled. *Style* slender, as long as the stamens, with a downy spreading three-cleft stigma.

Habitat.—Sea Coast, Sussex.—*Mr. Brewer, Dillenius*. Between Bognor and Brighthelmston.—*Hudson*.

Annual; flowering in July.

This species is found common on the shores of many parts of the Mediterranean, and introduced from the above authorities; but it does not appear to have been lately found as an inhabitant of our coasts.

GENUS III. PE'PLIS.—LINN. *Purslane*.

Nat. Ord. LYTHRA'RIÆ. JUSS. DICT.

GEN. CHAR. *Calyx* campanulate, with six large erect teeth, and six small alternate spreading ones. *Petals* six, small, or wanting.

Stigmas capitate. *Capsule* membranous, two celled, many seeded —“ Named from *πεπλιον*, anciently applied to the genus *Portulaca*, now to one somewhat similar in habit.”—*Hooker*.

1. *P. Portula*, Linn. (Fig. 528.) *Water Purslane*. Leaves opposite, obovate, narrowing into a footstalk; flowers solitary in the axis of the leaves.

English Botany, t. 1211.—English Flora, vol. ii. p. 187.—*Hooker*, British Flora, vol. i. p. 157.—Nat. Ord. *Salicariæ*, Juss. in Lindley's Synopsis, p. 71.

A small herbaceous plant, with slender fibrous roots, and square, smooth, tender, prostrate stems about six inches long, creeping around, and putting out roots from the axis of the leaves. Leaves numerous, opposite, obovate, tapering at the base into a slender footstalk as long as the leaf, quite smooth, a pale yellowish green. Flowers small, solitary in the axis of the leaves, almost sessile. Calyx inferior, of one piece, bell-shaped, persistent, smooth, reddish, twelve ribbed, the limb of twelve teeth, six erect, closing over the flower before bursting, in a conical shape, tipped with a small black gland, the six alternate teeth smaller and spreading. Corolla of six small pinkish petals enclosed within the calyx, or wanting. Stamens inserted into the tube of the calyx, alternating with the petals, shorter than the calyx. Style very short. *Stigmas* capitate. *Capsule* round, smooth, pale, membranous, crowned by the persistent style, and enveloped at the base by the calyx, two-celled, many seeded. Seeds small, pale, brown, smooth, angular.

Habitat.—Watery places and marshes; not unfrequent.

Annual; flowering from July to August.

This little plant is not unfrequent in humid places and the banks of streams in almost all parts of Europe, but it does not appear to have been applied to any particular use.

GENUS IV. LEUCOJUM.—LINN. *Snowflake*.

Nat. Ord. AMARYLLIDÆÆ. R. BROWN.

GEN. CHAR. *Perianth* with a short tube and a campanulate limb, of six equal pieces, thickened at the apex. Flowers from a membranous *spatha*.—Named from *λευκος*, white; and *ιον*, a violet. The name *λευκοιον* appears to have been applied by the ancients both to violets and the wall-flower, and they seem to have used them all for the same medicinal purposes.

1. *L. Æstivum*, Linn. (Fig. 529.) *Summer Snowflake*. *Spatha* many flowered; style filiform, club-shaped.

English Botany, t. 621.—English Flora, vol. ii. p. 130.—*Hooker*, British Flora, vol. i. p. 157.—Lindley, Synopsis, p. 265.

Bulb oblong, enveloped in dark brown membranous coats. *Leaves* numerous, from one to two feet long, linear, smooth, keeled at the back, the apex rounded, erect, of a bright green, enveloped at the base in thin membranous sheaths. *Scape* simple, two-edged, as long or longer than the leaves, terminating in a greenish membranous pointed *spatha*, from the bosom of which hang drooping three or more *flowers*, each on a roundish slender *pedicle*, thickened upwards. *Perianth* white, of six equal ovate-lanceolate pieces, numerous veins, and thickened at the apex into a greenish point, concave, united at the base into a very short tube, and disposed in a bell-shaped manner. *Stamens* inserted into the base of the perianth, and half as long. *Filaments* short, slender. *Anthems* large, yellow, two celled, bursting by two terminal openings. *Style* slender, club-shaped, obliquely pointed, longer than the stamens. *Capsule* elliptical, obtuse, three celled. *Seeds* several, globose, black.

Habitat.—Moist meadows. Thames side below Greenwich, especially on the Kentish shore.—*Mr. E. Forster*. In Suffolk.—*Mrs. Cubbold*. Berkshire, Westmoreland, Northumberland, &c.

Perennial; flowering in May and June.

This species, more frequent on the Continent than with us, is nearly allied to the *L. vernum*, which is found in the mountain pastures of Germany, and distinguished by the scape bearing only one flower. The summer snowflake is frequently cultivated in cottage gardens, requiring no attention to bring it to perfection, except that of a moist situation, where it increases itself by its bulbs.

GENUS V. GALANTHUS.—LINN. *Snowdrop*.

Nat. Ord. AMARYLLIDÆ. R. BROWN.

GEN. CHAR. *Perianth* with a short tube, and a limb of six unequal pieces, the three outer ones pointed and spreading, the three inner half as long, erect, and emarginate. *Flowers* from a *spatha*.—Named from γαλα, milk; and ανθος, a flower.

1. *G. nivalis*, Linn. (Fig. 530.) *Snowdrop*. *Leaves* simple, linear. English Botany, t. 19.—English Flora, vol. ii. p. 129.—Hooker, British Flora, vol. i. p. 157.—Lindley, Synopsis, p. 263.

Bulbs ovate, enveloped in loose membranous coverings. *Leaves* about two, simple, straight, linear, obtuse, four to six inches long, of a glaucous green, obtusely keeled at the back, erect, enveloped at the base in a pale thin membranous sheath. *Scape* round, simple, at first as long as the leaves, terminated by a pale thin tubular membranous *spatha*, from the bosom of which gracefully droops the solitary flower on its slender *pedicle*. *Flower* pure white, with numerous longitudinal veins, the *perianth* of six pieces, the three outer ones ovate lanceolate, the three inner half as long as the outer ones, obtuse notched, and with

a green blotch on the outer side of each, and striated within, thicker and erect, while the outer ones are spreading. *Stamens* shorter than the perianth, erect, with very short *filaments*, and yellow lanceolate, two pointed celled *anthers*, bursting by terminal pores. *Style* simple, cylindrical, longer than the *stamens*, with a simple obliquely pointed *stigma*. *Capsule* obtusely triangular, of three cells, opening with three valves. *Seeds* numerous, globose, attached to the margins of the valves.

Habitat.—Groves, orchards, meadows, and pastures, in various parts of England, Scotland, and Ireland; a doubtful native.

Perennial; flowering in February and March.

Few of our native plants are more generally known and admired than the Snowdrop, either from the beautifully pure simplicity of its graceful flowers, or its early appearance; for

“Already now the Snowdrop dares appear,
The first pale blossom of the ripening year,
As Flora’s breath by some transforming power,
Had changed an icicle into a flower:
Its name and hue the scentless plant retains,
And winter lingers in its icy veins.”

Mrs. Barbauld.

Indeed almost every poet who sings the changes of the circling year, hails with delight the Snowdrop as the earliest of

“Spring’s voluptuous paintings, when she breathes
Her first sweet kisses.”

And few persons who look forward with delight toward the change from winter’s gloom to cheering spring’s return, will see unmoved peeping through the yet unmelted snow, the appearance of this unassuming flower, which,

“Like pendent flakes of vegetating snow,
The early herald of the infant year,
Ere yet the adventurous Crocus dares to blow,
Beneath the orchard boughs thy buds appear.”

The Snowdrop, from its flowering about Candlemas day, was formerly called by the Monks “our Lady of February,” which was afterwards changed into “Fair Maid of February,” a name by which it is now sometimes called.

GENUS VI. NARCIS'SUS.—LINN. *Daffodil*.

Nat. Ord. AMARYLLIDÆ. R. BROWN.

GEN. CHAR. *Perianth* funnel-shaped, with a spreading six parted limb; orifice of the tube surrounded with a campanulate, or cup-shaped crown. *Stamens* inserted into the tube, and concealed

within the cup. *Flowers* from a *spatha*.—Name from *ναρκισσος*, *Narcissus*, which is derived from *ναρην*, *stupor*, from the strong stupifying smell of the flowers; or it derives its name from the fabled youth *Narcissus*, the son of the river Cephissus, and the nymph Liriope, who it is related died for the love of himself, and was changed into a flower, of whom Shelly says,

“Narcissi the fairest among them all,
Who gaze on their eyes in the stream’s recess,
Till they die of their own dear loveliness.”

1. *N. poeticus*, Linn. (Fig. 531.) *Narcissus of the Poets*. Leaves linear, obtuse, flat, with an obtuse keel; *spatha* mostly single flowered, on a compressed scape; crown very short, membranous, with a scarlet crenated margin.

English Botany, t. 275.—English Flora, vol. ii. p. 131.—Hooker, British Flora, vol. i. p. 158.—Lindley, Synopsis, p. 265.

Bulb ovate, enveloped in a loose brownish membranous covering. *Leaves* about four, linear, obtuse at the point, flat, obtusely keeled, of a dark somewhat glaucous green, finely striated, with longitudinal veins, enveloped at the base in one or more pale thin membranous sheaths. *Scape* as long or longer than the leaves, compressed, two edged and striated, terminating in a pale thin membranous *spatha*, numerous striated, and bearing one or rarely two flowers, on short stout *pedicles*. *Flowers* large and fragrant, the *tube* long and narrow, the *perianth* of six ovate wedge-shaped pure white spreading pieces, and surrounding the mouth of the tube is a short thin pale yellow membranous cup-shaped crown, with a crenated margin, of a fine scarlet colour. *Stamens* as long as the tube.

Habitat.—Open heathy places in a sandy soil, in Norfolk and Kent; about Cork.—*Mr. Drummond*. A doubtful native.

Perennial; flowering in May.

This most beautiful species (the *true* *Narcissus* of the Greeks, according to Smith) is one of the greatest ornaments of our gardens. Amongst the May flowers, its pure white colours, with its central cup fringed with scarlet, and the rich fragrance which it exhales, render it a favourite with most persons.

We find it very abundant in sandy districts in many parts of Italy, as well as in Portugal. The flowers vary considerably in the size of the segments of the perianth; some are ovate, others ovate wedge-shaped, others narrow, almost ligulate, and all either with or without a central point, and the leaves are sometimes not half so long as the scape, and at others equal to it.

2. *N. biflorus*, Curt. (Fig. 532.) *Pale Narcissus*. Leaves linear, obtuse, flat, with an acute keel; *spatha* two flowered, on a compressed scape, crown very short, membranous, with a crenated margin.

English Botany, t. 276.—English Flora, vol. ii. p. 132.—Hooker, British Flora, vol. i. p. 158.—Lindley, Synopsis, p. 265.



531

Narcissus poeticus.



532

Narcissus biflorus.



533

Narcissus pseudo-narcissus



534

Muscari racemosum.



535

Hyacinthus non-scriptus.



536

Convalaria majalis.

This species in many respects is similar to the last; it is, however, readily distinguished by its acutely keeled *leaves*; the *spatha* two and sometimes three flowered, the *crown* always yellow, with a white crenated border, and not coloured, the *perianth* is shorter, with rounder pale sulphur-coloured segments, and it is much less fragrant.

Habitat.—Sandy fields in Kent and Herts.; near Totness, Devon; fields near Dublin, abundant.—*Mr. J. T. Mackay*.

Perennial; flowering in April and May.

This plant like the last is much cultivated, but it is not so highly esteemed either for its beauty or fragrance; it is also a doubtful native, but is now naturalised, and has an equal claim with the former to be admitted into our Flora.

3. *N. pseudo-narcissus*, Linn. (Fig. 533.) *Daffodil*. Spatha single flowered, in a compressed scape; crown bell-shaped, erect, the margin obsoletely six-cleft and crenated, as long as the ovate-lanceolate segments of the perianth.

English Botany, t. 17.—English Flora, vol. ii. p. 132.—Hooker, British Flora, vol. i. p. 158.—Lindley, Synopsis, p. 265.

Bulb ovate, enveloped in dark brown loose membranous coverings. *Leaves* linear, obtuse, erect, about three in number, obtusely keeled, finely striated, of a glaucous green, from eight to twelve inches long, enveloped at the base in one or two common pale thin membranous sheaths. *Scape* erect, as long or longer than the leaves, compressed, striated, and somewhat twisted, terminated by a thin pale dry finely striated membranous *spatha*, and a solitary yellow *flower*, on a short *pedicle*, the *tube* short, wide, its mouth surrounded by a large bell-shaped *crown*, of a golden yellow colour, the margin more or less deeply six-cleft, or waved and crenated, as long or longer than the paler *perianth*, of six spreading ovate-lanceolate pieces. *Stamens* with erect linear *anthers*, about half as long as the crown. *Style* longer than the stamens, with a capitate *stigma*.

Habitat.—Fields and moist meadows in various parts of England; frequent. Rare in Scotland; about Culross and Dunoon, "but scarce, indigenous." Naturalized near Cork, Ireland.—*Mr. Drummond*.

Perennial; flowering in March and April.

The Daffodil may be enumerated amongst the more beautiful of our native plants. In some parts of the Midland Counties it grows so abundant as to form a complete covering, or as if it had been sown for a crop, rather than of natural wild growth. It is frequently introduced as a garden flower, and makes a pretty gay showy appearance during the Spring months, but if too highly cultivated it loses its natural light appearance and elegance by becoming double and heavy looking.

GENUS VII. MUSCARI.—TOURN. *Grape Hyacinth.*

Nat. Ord. ASPHO'DELEÆ. R. BROWN.

GEN. CHAR. *Perianth* ovate, inflated, or cylindrical, constricted at the mouth; the *limb* very short, of six teeth. *Capsule* with three prominent angles. *Cells* two seeded.—Name from *μσχος*, *musk*; from the smell of some of the species.

1. *M. racemosum*, Mill. (Fig. 534.) *Starch Grape Hyacinth.* Flowers ovate, with six furrows, the upper ones erect, abortive; leaves linear, channeled, flaccid, keeled at the back, and longer than the scape.

English Flora, vol. ii. p. 149.—Hooker, British Flora, vol. i. p. 162.—Lindley, Synopsis, p. 269—*Hyacinthus racemosus*, Linn.—English Botany, t. 1931.—Nat. Ord. *Liliaceæ*, De Cand. Theor. Elem.

Bulb ovate, enveloped in dark brown coats. *Leaves* numerous, from eight to twelve inches long, linear, flaccid, of a dark somewhat glaucous green, channeled, striated, and obtusely keeled at the back. *Scape* shorter than the leaves, erect, round. *Inflorescence* a terminal densely ovate numerous flowered *raceme*, the upper ones smaller than the others, on shorter pedicles, and abortive. *Flowers* of a dark purplish glaucous blue. *Perianth* ovate, constricted at the mouth, with six slight furrows and six slender ribs, the *limb* very short, of six minute teeth, of a very pale purple or white. *Stamens* inserted into about the middle of the tube, with awl-shaped *filaments*, and ovate dark coloured *anthers* included within the tube. *Style* erect, short, with an obtuse granulated *stigma*. *Capsule* roundish, with three prominent obtuse angles, three celled, three valved, each cell two seeded.

Habitat—Fields and amongst ruins, in several parts of England.

Perennial; flowering in May.

This is another of our doubtful native plants, though now perfectly naturalized. It is very frequent in corn and grass fields, as well as amongst the vineyards in several parts of Italy, and in many places growing with several other species of the same genus. The odour of the flowers is peculiar, resembling that of wet starch. It is frequently cultivated in gardens, and is a pretty ornamental Spring flower, but does not appear to have been applied to any particular use.

GENUS VIII. HYACINTH'US.—LINN. *Hyacinth.*

Nat. Ord. ASPHO'DELEÆ. R. BROWN.

GEN. CHAR. *Perianth* tubular, six-cleft, or six partite, the segments reflexed, or spreading at the apex. *Stamens* inserted about the

middle of the perianth. *Capsule* obtusely three angled; *cells* many seeded.—Named from the youth *Hyacinthus*, the son of Amyclas, who was beloved by Apollo and Zephyrus at the same time; the latter is said to have killed him: and Apollo from his blood to have produced a plant, whose leaves bore in dark streaks the initials of his name.

1. *H. non-scriptus*. Linn. (Fig. 535.) *Harebell Wild Hyacinth*. Leaves broadly linear; flowers in a drooping raceme; segments of the perianth recurved at the apex, bracteas in pairs, longer than the pedicles.

Hooker, British Flora, vol. i. p. 162.—Lindley, Synopsis, p. 270.—*Scilla nutans*.—English Botany, t. 377.—English Flora, vol. ii. p. 147.—*Endymion nutans*, Dumortier. flor. belgic.—*Agraphis nutans*, Link.—Nat. Ord. *Liliaceæ*, De Cand.

Bulb roundish, enveloped in pale loose coats, fleshy. *Leaves* numerous, broadly linear, tapering at the base with an acute or tapering point, somewhat channeled, and keeled at the back, striated, thin, flaccid, erect below, drooping above, of a pale shining somewhat glaucous green, from six to twelve inches long. *Scape* solitary, erect, longer than the leaves, round, bearing a terminal drooping *raceme*, of numerous cylindrical bell-shaped *flowers*, of a beautiful blue colour, sometimes white, rarely rose coloured, each on a short slender *flower-stalk*, which is elongated after flowering, *bractea* of two unequal coloured lanceolate tapering pieces, much longer than the partial foot-stalks. *Stamens* inserted about the middle of the segments of the perianth. *Filaments* thin, flat. *Anthers* yellow, two celled. *Style* linear, about as long as the stamens. *Stigma* obtuse. *Capsule* obtusely three angled, three celled, each cell many seeded.

Habitat.—Wood, copses, hedges, and thickets; frequent.

Perennial; flowering in May.

The specific name of *non-scriptus* was given to this plant from its leaves not being marked with any characters of the fabled Hyacinthus, in commemoration of his change into a plant, as some of the other species are said to be.

GENUS IX. CONVALLARIA.—LINN. *Lily of the Valley, or Solomon's Seal*.

Nat. Ord. SMILACÆÆ. R. BROWN.

GEN. CHAR. *Perianth* campanulate or tubular, six-cleft or six-toothed. *Fruit* a round three celled *berry*, with one or two *seeds* in each cell.—Name from *convallis*, a *valley*; from the species delighting to grow in valleys and damp places.

1. *C. maja'lis*, Linn. (Fig. 536.) *Lily of the Valley*. Scape naked, semi-cylindrical; flowers in a naked drooping raceme, globoso-campanulate; leaves two or three, ovate-lanceolate.

English Botany, t. 1035.—English Flora, vol. ii. p. 154.—Hooker, British Flora, vol. i. p. 158.—Lindley, Synopsis, p. 270.

Root of numerous long branched much matted fibres, and wiry creeeping underground stems, putting out occasional whorls of fibres. *Leaves* two, sometimes three, ovate-lanceolate, from three to four inches long, of a fine rather dark green, having a mid-rib and numerous slender parallel veins, footstalks mostly as long as the leaves, thin, dilated, embracing each other, and with the scape enveloped at the base with several obtuse pale pink or white membranous sheaths. *Scape* erect, round, or somewhat angular, from four to six inches long, terminating in a *raceme*, of drooping pure white *flowers*, having a delightful fragrance, each flower on a slender curved stalk, from the bottom of a pale thin lanceolate *bractea*, about half as long. *Perianth* globose, bell-shaped or cup-shaped, with six ribs, terminating in six acutely lanceolate reflexed teeth. *Stamens* with short awl-shaped *filaments* inserted into the base of the *perianth*. *Anthers* erect, elliptical, cloven, of two cells, bursting laterally. *Style* erect, as long as the stamens, thickened upwards. *Stigma* obtuse, triangular. *Fruit* a round scarlet berry, as large as a black currant, having three *cells*, and each cell one or two *seeded*.

Habitat.—Groves and woods in a damp sandy or loamy soil; in various parts of England and Scotland. "Scarcely indigenous" in Ireland.

Perennial; flowering in May.

Few, if any, of our native plants are more general favourites than the Lily of the Valley. It is easy of cultivation in any retired or shady part of the garden; or let the fair admirer of nature's brightest gems, as the poet Thompson sings,

"..... Seek the bank where flowering elders crowd,
Where scatter'd wild the lily of the vale,
Her balmy essence breaths."

And will not the examination of its simple drooping bells of purest white in the still calm retreat, its usual place of birth, recall with ten-fold force the beautiful expression of Him, whose words are truth, and who says, "Consider the lilies of the field, how they grow; they toil not, neither do they spin: and yet I say unto you, that even Solomon, in all his glory, was not arrayed like one of these."—Matthew, ch. vi., v. 28. 29.

Perhaps of all the forms of nature there are none better suited to the reflecting mind than the vegetable creation; we can take the different species of it in our hands, and examine them in every way; we can put them to every test of our invention, and we find all their parts so simple, and yet so beautiful, that while they assist our minds in admi-



537

Convallaria verticillata.



538

Convallaria polygonatum.



539

Convallaria multiflora.



540

Asparagus officinalis.



541

Scilla verna.



542

Scilla bifolia.

ration of that mighty hand who created them, they, clothed in the pure garments of their Maker, breathe forth the riches of His goodness, and forcibly, though silently, would lead us in His ways, for

"Take but the humblest lily of the field,
And if our pride will to our reason yield,
It must by some comparison be shown
That on the regal seat great David's son,
Array'd in all his robes and types of power,
Shines with less glory than that simple flower."

Prior.

The Lily of the Valley, formerly called *Lillium convallium*, was much esteemed as a valuable medicine in palpitation of the heart and all nervous affections, being gently stimulating and aperient. The flowers were used in the form of spirituous tincture, infusion, or powder, as well as the root; but they are now out of use.

2. *C. verticilla'ta*, Linn. (Fig. 537.) *Narrow-leaved Solomon's Seal*. Stem erect, angular; leaves lanceolate, whorled; flowers axillary, cylindrical.

English Botany, 128.—English Flora, vol. ii. p. 155.—Hooker, British Flora, vol. i. p. 158.—Lindley, Synopsis, p. 270.

Roots with fleshy creeping underground stems. *Stems* erect, from twelve to eighteen inches high, simple, angular, smooth, naked in the lower part, with numerous whorls, of about four linear lanceolate leaves, quite smooth, sessile, of a cheerful green, paler and somewhat glaucous beneath, with a stout mid-rib and numerous slender parallel lateral veins. *Flowers* numerous from the axil of the leaves, solitary, or several on branched slender footstalks, drooping. *Perianth* tubular, cylindrical, white or yellowish, tipped with green, and six ribbed, each rib terminating in the point of the segments, which are tipped with a tuft of short hairs. *Stamens* on short filaments, inserted into about the middle of the tube. *Anthers* yellow, linear, of two cells, bursting laterally. *Style* short. *Stigma* obtuse. *Fruit* a round small dark blue berry, with three cells, and each cell one or two seeded.

Habitat.—Woods and glens, very rare; found only in Scotland. Den of Rechip, four miles from Dunkeld, Perthshire, Mr. A. Bruce; and woods at Blair, in Athol, Mr. James Macnab.

Perennial; flowering in June.

This elegant species of *Convallaria* is found more frequent on the Continent than with us, growing beautifully in the damp shady glens of the Apennine woods of Italy, and mostly in flower in the month of May.

3. *C. Polygona'tum*, Linn. (Fig. 538.) *Angular Solomon's Seal*. Stem angular; leaves alternate, ovate oblong or elliptical, half embracing the stem, obtusely pointed, smooth; peduncles mostly single flowered, axillary; filaments smooth; style straight.

English Botany, t. 280.—English Flora, vol. ii. p. 155.—Hooker, British Flora, vol. i. p. 159.—Lindley, Synopsis, p. 270.

Root with fleshy creeping underground stems, and whorls of stout fibres. *Stem* angular, from twelve to eighteen inches high, slightly wavy, and curved above, smooth, naked below, or enveloped in one or more thin membranous pale sheaths, abortive leaves, the upper part with numerous alternate more or less one sided *leaves*, half embracing the stem, ovate oblong or ovate elliptical, with an obtuse or acute sometimes lanceolate point, and somewhat tapering at the base, quite smooth, of a rather dark somewhat glaucous green, paler beneath, having a mid-rib and numerous lateral parallel slender veins. *Flowers* drooping, axillary, mostly solitary, sometimes two on a peduncle. *Perianth* white, long, tubular, cylindrical, six ribbed, each rib terminating in the point of the acute segments, which are tinged with green, and tipped with a small tuft of short rigid hairs. *Stamens* on short slender smooth *filaments* inserted into the perianth below its middle. *Anthers* long, slender, of two cells, cleft at the base, bursting laterally. *Style* straight, slender, filiform, as long as the perianth. *Stigmas* obtuse. *Fruit* a globular dark blue *berry*, of three cells, each cell one or two seeded.

Habitat.—Woods and shady places, in England. On the edge of the cliffs near Wharf and Settle, Yorkshire. Near Bexley and Dartford, in Kent.—*Mr. Greaves*. Mendip hills, Somersetshire; and Kyloe rocks, near Berwick.—*Mr. A. Bruce*.

Perennial; flowering in May and June.

This species, like the former, is not unfrequent in various parts of the Continent, as well as *C. latifolia*, Jacq., which is nearly allied to it, but is distinguished by its leaves being more broadly ovate, shortly petiolate, with an obtuse or acute point, and the ribs and veins on the under side being downy, the peduncles bearing from one to four flowers, and the style being flexuous, it is also mostly of a stouter and more robust growth.

4. *C. multiflora*, Linn. (Fig. 539.) *Common Solomon's Seal*. Stem round; leaves alternate, ovate oblong or elliptical, half embracing the stem; peduncles axillary, from one to five flowered; filaments downy; style flexuous.

English Botany, t. 279.—English Flora, vol. ii. p. 156.—Hooker, British Flora, vol. i. p. 159.—Lindley, Synopsis, p. 270.

Root with fleshy creeping underground stems, and whorls of fibres. *Stem* from a foot and a half to two feet high, round, smooth, or slightly angular, somewhat wavy and curved above, naked below, or enveloped at the base in thin membranous sheaths, the upper part with numerous alternate one side *leaves*, ovate oblong or elliptical, with a lanceolate or acute point, and somewhat tapering base, which half embraces the stem, quite smooth, mostly of a palish green, glaucous on the under side, with a mid-rib and numerous slender parallel veins. *Flowers*

drooping, axillary, varying in number from one to four, on a slender smooth peduncle. *Perianth* white, long, tubular, cylindrical, slightly contracted about the middle, six ribbed, each rib terminating in a green lanceolate segment, tipped with a tuft of short white hairs. *Stamens* on slender short downy *filaments*, inserted above the middle of the tube, bearing elliptical two celled *anthers*, cleft at the base, and bursting laterally. *Style* slender, filiform, as long as the stamens, smooth, wavy. *Stigmas* obtuse. *Fruit* a globular dark blue berry, of three cells, each cell one or two seeded.

Habitat.—Woods and shady places in various parts of England and Scotland, especially in the Southern Counties, though no where very common.

Perennial; flowering in May and June.

The fleshy roots of the *Convallarias* abound in starchy matter in combination with a bitter acrid principle, from which it is readily separated by grating or bruising the roots in water, and washing the pulp, which carries away the acrid juices, and leaves the starch, in which state it is probable it was made into bread, as related by Linnæus in his *Flora Suecica*, and used by the inhabitants in the North of Europe. The fresh bruised root is an application frequently made use of to remove the marks of bruises on the face, &c., which it appears to do by stimulating the action of the capillary vessels of the skin, and thus removing from the contused parts the cause of discolouration.

GENUS X. ASPA'RAGUS.—LINN. *Asparagus*.

Nat. Ord. ASPHO'DELEÆ. R. BROWN.

GEN. CHAR. *Perianth* of six equal deciduous pieces, the stamens inserted into the base. *Filaments* subulate, smooth. *Anthers* peltate, erect. *Fruit* a round berry, of from one to three cells, with few seeds in each. *Embryo* out of the centre.—“Name *ασπαραγος*, Att. *ασφαραγος*, from *σπαρσσω*, to tear; and that according to Théis, from *spen*, a spine in Celtic, which is the root of many words in Latin, French, German, and English. Many species of this genus are armed with spines.”—Hooker.

1. *A. officinalis*, Linn. (Fig. 540.) *Common Asparagus*. Stem erect, rounded, much branched, herbaceous, without prickles; leaves bristle shaped, fasciculated, flexible; peduncles jointed near the middle.

English Botany, t. 339.—English Flora, vol. ii. p. 153.—Hooker, British Flora, vol. i. p. 162.—Lindley, Synopsis, p. 267.

Root with creeping underground stems, and numerous long fleshy fibres. *Stem* erect, mostly several from one root, about a foot high,

roundish, smooth, much branched above, with slender somewhat angular branches, densely clothed with scales at the base of a pale thin membranous texture, scattered upwards, and diminishing in size, forming a lanceolate scaly stipule at the base of each fascicle of the leaves. *Leaves* numerous, smooth, bristle shaped, with an acute point, channeled above, in tufts of variable numbers, and mostly of irregular lengths. *Flowers* from the axils of the branches and leaves, from one to four together, each flower on a slender drooping *peduncle*, about half an inch long, smooth and jointed about the middle, the part next the flower being the thickest, which seems to be a prolongation of the *perianth*, which is bell-shaped, of a greenish colour, without smell, small, divided nearly half way down into six lanceolate segments, each having a green rib terminating in its point. *Stamens* on very short *filaments*, inserted about the middle of the perianth. *Anthers* ovate, shield-like, yellow, large, erect. *Style* very short, with a three lobed spreading *stigma*. *Fruit* a round scarlet *berry*, smooth and shining, of three *cells*, or only with one or two from abortion of the others, each cell with one or two globose *seeds*, having a horny *albumen*, and the *embryo* out of the centre.

Habitat.—Waste sandy or stony places. On the sea coast in the West and South-west of England; Asparagus Island, Kynance Cove, Cornwall. Links near Gosford, Scotland.

Perennial; flowering in June and July.

The young quick grown tender stems of the Asparagus are well known as a culinary vegetable, much esteemed, but containing very little nutriment. The juice of the stems and roots has been long used as a diuretic in affections of the kidneys, but its efficacy is very doubtful; when the stem is eaten as a vegetable, or any of its preparations taken into the stomach, it is rapidly absorbed into the system, and secreted by the kidneys. We have repeatedly observed the urine to have the peculiar odour given to it by Asparagus in fifteen or twenty minutes after it has been taken. Besides this species there are several others which grow common in the hedges in many parts of Italy, all of which are indiscriminately cut in a young state, and used at table; but in the wild state the shoots are much smaller, harder and of stronger flavour, than after they have been grown quick by cultivation. The juice of Asparagus contains a peculiar vegetable principle, called *asparagin*, which spontaneously forms into rhomboidal prisms in the juice, when it has been evaporated to the consistence of syrup.

GENUS XI. SCILLA.—LINN. *Squill*.

Nat. Ord. ASPHO'DEAE. R. BROWN.

GEN. CHAR. *Perianth* of six equal deciduous generally spreading pieces. *Filaments* thread-shaped, smooth, inserted in the base of the perianth. *Fruit* a three celled capsule, with roundish seeds.—Name *σκυλλω*, *Sea Onion*, or *Squill*.

1. *S. ver'na*. Huds. (Fig. 541.) *Vernal Squill*. Bulb roundish, coated; leaves long, erect, linear, channeled; flowers in a hemispherical corymb; bractees lanceolate, as long as the peduncles.

English Botany, t. 23.—English Flora, vol. ii. p. 145.—Hooker, British Flora, vol. i. p. 161.—Lindley, Synopsis, p. 269.

Bulb roundish, white, coated with numerous loose thin brownish membranous envelopes, and with a dense tuft of woolly fibrous roots. *Leaves* numerous, dark green, smooth and shining, long, linear, channeled, tapering at the base, and obtuse at the point. *Scape* round, smooth, erect, about four inches high, as long as the leaves. *Inflorescence* a terminal racemose corymb, of an hemispherical form, mostly few flowered, of a deep purplish blue colour, each flower arising from the bosom of a thin pale membranous lanceolate bractea, as long as the slender round peduncles. *Perianth* of six ovate-lanceolate concave spreading pieces, keeled at the back. *Stamens* inserted opposite the segments of the perianth, on thin membranous filaments, dilated downwards, and with dark peltate two celled anthers, bursting laterally. *Style* erect, as long as the stamens, with an obtuse stigma. *Capsule* roundish, crowned by the persistent base of the style, three angled, three furrowed, three celled, each cell with several seeds.

Habitat.—Sea coasts and maritime cliffs of England, Scotland, and Ireland, especially in the west and northern parts; and abundant in the Orkneys and Shetland Isles.—Mr. P. Neill.

Perennial; flowering in April and May.

2. *S. bifo'lia*, Linn. (Fig. 542.) *Two-leaved Squill*. Bulb oblong, coated; leaves two, linear, lanceolate, channeled, recurved; flowers in a lax corymbose raceme; scape round; peduncles erect, without bractea.

English Botany, t. 24.—English Flora, vol. ii. p. 146.—Hooker, British Flora, vol. i. p. 161.—Lindley, Synopsis, p. 269.

Bulb oblong, coated with dark brown membranous envelopes, and with slender fibrous roots. *Leaves* two, sometimes three, of a dark smooth shining green, linear lanceolate, striated, channeled, narrowed towards the base, and obtusely pointed, recurved or spreading, from two to three inches high. *Scape* round, smooth, erect, about the same length as the leaves. *Inflorescence* a lax sub-corymbose raceme, of a few palish blue flowers, on smooth erect peduncles, without any

bracteas at the base. *Perianth* of six ovate-lanceolate spreading pieces, concave, and somewhat keeled at the back. *Stamens* opposite the pieces of the perianth, on awl-shaped *filaments*, with dark oblong *anthers*, of two cells. *Style* erect, as long as the stamens. *Stigma* obtuse. *Capsule* roundish, crowned by the persistent style, three angled, three furrowed, three celled, each *cell* with several *seeds*.

Habitat.—Groves and shady places. Said to have been found in the West of England; but a doubtful native.

Perennial; flowering in March and April.

This species has a very doubtful claim to admittance into the Flora of this country; its authority seems to rest upon Mr. Simms, druggist, Norwich, who received it from the West of England, and it is also preserved in Buddle's herbarium in the British Museum.

It is by no means an uncommon plant in the sub-alpine districts of the Continent, flowering in March. It is frequently cultivated in our gardens, and makes a pretty early border variety amongst our Spring flowers.

3. *S. autumnalis*, Linn. (Fig. 543.) *Autumnal Squill*. Bulb globular, coated; leaves linear, short; flowers sub-corymbose, longated after flowering; scape striated; peduncles without bractea.

English Botany, t. 78.—English Flora, vol. ii. p. 146.—Hooker, British Flora, vol. i. p. 161.—Lindley, Synopsis, p. 269.

Bulb globular, white, enveloped in rather close pale thin membranous envelopes, and with a few rather fleshy long fibres. *Leaves* narrow, linear, from two to four inches long, somewhat channeled above, obtusely pointed, quite smooth, of a dark green. *Scape* erect, slender, from four to twelve inches high, roundish, striated, frequently in a spiral manner, smooth, solitary, rarely two. *Inflorescence* a somewhat corymbose raceme, which becomes much elongated after flowering, the *partial stalks* round, ascending, becoming elongated and more erect after flowering. *Flowers* small, of a pinkish violet colour, almost scentless. *Perianth* of six ovate-lanceolate concave pieces, somewhat keeled at the back by the dark coloured mid-rib, and almost as long as the partial stalk. *Stamens* nearly as long as the segments of the perianth, from the base of which they are inserted. *Filaments* pale pink, membranous dilated downwards. *Anthers* ovate, dark blue, of two cells, bursting laterally. *Style* erect. *Stigmas* obtuse. *Capsule* roundish, three angled, three celled, each *cell* with several *seeds*.

Habitat.—Dry pastures or rocky hills. Kynan's Cove, and other places in Cornwall; near Bristol; Moulsey Hurst.—Mr. J. S. Mill. Blackheath and Richmond, abundant.—Rev. G. E. Smith. Flagpost-hill, Torquay.—Rev. J. S. Tozer. Jersey.—W. C. Trevelyan, Esq.

Perennial; flowering in August and September.

None of the British species of Squill are, that we are aware of, applied to any particular use, though the bulbs of this genus are more



or less bitter and acrid. The *Scilla maritima*, which grows abundantly on the shores of the Mediterranean sea, is much used in medicine as an expectorant and diuretic, in the form of pill, powder, tincture, or oxymel; but if taken in too large a dose it produces sickness and purging. The bulb is large, firm, white, with thick fleshy coats; and for medical purposes it is cut into thin slices and dried in the sun; it is commonly known by the name of *Spanish Squill*, or *Sea Onion*.

GENUS XII. ORNITHOGALUM.—LINN. *Star of Bethlehem.*

Nat. Ord. ASPHOD'EEÆ. R. BROWN.

GEN. CHAR. *Perianth* of six persistent pieces. *Stamens* inserted into the base of the perianth, the three outer ones with the *filaments* dilated at the base. *Stigma* small, capitate. *Fruit* a three angled, three furrowed, three celled capsule. *Seeds* ovate or angular.—Name from *ovis*, a bird; and *γαλα*, milk. The derivation of this word appears to have puzzled all etymologists, and whether it is from the resemblance of the flowers to "birds' milk," (that is the white milky fluid which is more or less abundant with the dung of birds, and is the urinary secretion,) appears doubtful. The bulbs of the *O. umbellatum*, and probably other allied species, are eaten in Palestine; and according to Linnæus, were the *Dove's Dung* mentioned, in the following passage in the 2nd Book of Kings, ch. vi. v. 25, "and the fourth part of a cab of *dove's dung* (sold) for five pieces of silver."

I. *O. Narbonense*, Linn. suppl. 440, n. 4. (Fig. 544.) *Narbonne Star of Bethlehem*. Raceme elongated, many flowered; filaments all dilated below; peduncles equal, spreading in flower, erect in fruit; bractea lanceolate, as long as the peduncles; leaves linear, appearing before the flowers.

Bertolonii's *Amœnitates Italicæ*, p. 143.—Savi Bot. Etruscum, vol. ii. p. 215.—Dodon Pempt. 222.—*O. Pyrenaicum*, Linn.—English Botany, t. 499.—English Flora, p. 143.—Hooker, British Flora, vol. i. p. 161.—Lindley, Synopsis, p. 268.

Bulb ovate, white, enveloped in loose torn membranous coats. *Leaves* several radical, linear, long, spreading, channeled, with an acuminate point, rounded at the back, of a somewhat glaucous green, soon withering at the point, and appearing before the flowers. *Scape* erect, round, smooth, from one and a half to two feet high, or more, simple, terminating in a long *racemose spike*, of numerous flowers, each on a round spreading *footstalk*, about half an inch long, which becomes almost erect when in fruit, and arising from the base of a

pale thin membranous *bractea*, lanceolate, with an elongated point, and about as long as the footstalk. *Perianth* of six narrow elliptical pieces, obtusely pointed, white within, green at the back, with a white margin. *Stamens* arising from the base of the segments of the perianth, and about half as long, white, thin, and membranous in the lower half, the upper awl-shaped. *Anthers* yellow, oblong, incumbent. *Style* short, with an obtuse three-cleft *stigma*. *Capsule* obovate, enveloped in the persistent perianth, somewhat three furrowed and three angled, three celled, each *cell* with several seeds.

Habitat.—Meadows and pastures in Somersetshire, Sussex, and Bedfordshire.

Perennial; flowering in June and July.

This species is nearly allied to *O. Pyrenaicum*, which is distinguished by the scape appearing before the leaves, the raceme being shorter, the peduncles longer than the bractea. The flowers are sulphur coloured, or a greenish yellow, with a green back, the germen orbicular, and the peduncles erect, close pressed to the scape. *O. Pyrenaicum* is, moreover, always found in mountainous districts, and not in meadows or pastures in open situations, like the present species.

2. *O. umbellatum*, Linn. (Fig. 545.) *Common Star of Bethlehem*. Flowers corymbose; peduncles longer than the bractea, spreading in fruit; filaments subulate; leaves linear, smooth, with a pale groove.

English Botany, t. 130.—English Flora, vol. ii. p. 143.—Hooker, British Flora, vol. i. p. 161.—Lindley, Synopsis, p. 268.

Bulb ovate, white, abundantly increasing by offsets from the base. *Leaves* radical, linear, smooth, shining, flaccid, round at the back, concave in front, and marked with a pale white line the whole length, acuminate at the point, but soon withering. *Scape* erect, round, smooth, from six to twelve inches high, as long or longer than the leaves, naked, terminating in a corymbose inflorescence, of from five to ten flowers, the peduncles round, smooth, the lower ones mostly reaching to a level, with the top ones, straight, spreading, becoming somewhat curved upwards near the end when in fruit, and each having at its base a pale thin striated membranous tapering lanceolate bractea, about half as long as the peduncles, persistent. *Flowers* a clear white within, externally green, with a broad white thin margin. *Perianth* spreading, of six concave elliptic obtuse lanceolate segments, about half an inch long, striated externally with longitudinal veins. *Stamens* with pale thin membranous filaments, tapering upwards. *Anthers* large, yellow, ovate oblong, incumbent, two celled, bursting laterally. *Style* straight, slender, reaching to the anthers. *Stigma* obtuse.

Habitat.—Meadows and pastures in various parts of England, though not common. Near Glasgow, scarcely wild.

Perennial; flowering in April and May.

This, as it is probable the whole of the *Ornithogalums* found in

England are naturalized plants, is more common than the other two species, and in some meadows growing in great profusion. This, as well as the other species, is commonly cultivated in gardens, and flowers freely, increasing by its bulbs abundantly.

3. *O. nu'tans*, Linn. (Fig. 546.) *Drooping Star of Bethlehem*. Flowers racemose, becoming pendulous on one side; filaments dilated, cloven, alternately smaller and shorter; leaves linear, smooth.

English Botany, t. 1997.—English Flora, vol. ii. p. 144.—Hooker, British Flora, vol i. p. 161.—Lindley, Synopsis, p. 268.

Bulb ovate, enveloped in dark brown loose coats. *Leaves* few, radical, linear, smooth, shining, flaccid, green, channeled, round at the back, and with an acute point. *Scape* erect, stout, round, smooth, and somewhat glaucous, from twelve to sixteen inches high, terminating in an erect *raceme*, of from six to ten flowers, alternate and spreading, becoming pendulous and turned to one side. *Peduncles* round, smooth, short, slender. *Bractees* large, ovate lanceolate, pale brown, thin, and membranous, as long again as the peduncles. *Flowers* large, clear white within the segment, externally green, with a narrowish white margin, numerous striated with slender stria. *Perianth* spreading, of six lanceolate acute segments, nearly an inch long. *Stamens* half as long as the perianth, with broad thin pale membranous *filaments*, three-cleft at the extremity, the central tooth bearing the anther, and the alternate *filaments* shorter and smaller than the others. *Anthers* oblong, narrow, yellow. *Style* erect, as long as the stamens, angular, furrowed, slender. *Stigma* obtuse, small, triangular. *Capsule* elliptical, obtusely three angled, with three deep furrows, three celled, each *cell* many seeded. *Seeds* deep brown, rugged.

Habitat.—Meadows, fields, and orchards; in Suffolk, Bedfordshire, Derbyshire, and Nottinghamshire, but not common.

Perennial; flowering in April and May.

GENUS XIII. GA'GEA.—SALISB. *Gagea*.

Nat. Ord. ASPHO'DELEÆ. R. BROWN.

GEN. CHAR. *Perianth* of six persistent pieces. *Filaments* not dilated at the base. *Stigma* gaping. *Fruit* a three angled three celled capsule. *Seeds* round.—Named in honour of the late Sir Thos. Gage, Bart., an excellent British botanist.

1. *G. lu'tea*, Ker. (Fig. 547.) *Yellow Gagea*. Leaves radical, one or two, linear lanceolate, the point abruptly acuminate, flat, with an acute keel, longer than the angular scape; umbel simple, with leafy bractea, longer than the peduncles; segments of the perianth lanceolate, obtuse.

Hooker, British Flora, vol. i. p. 160.—Lindley, Synopsis, p. 268.—*Ornithogalum luteum*, Linn.—English Botany, t. 21.—English Flora, vol. ii. p. 142.

Bulb ovate, solitary, clothed with several thick membranous brown envelopes. *Leaves* radical, one or sometimes two, linear lanceolate, tapering at the base, the point abruptly acuminate into a tapering point, smooth yellowish green, flat above, acutely keeled, and striated with several longitudinal ribs, two more prominent than the others, from six to twelve inches long. *Scape* angular, smooth, striated, shorter than the leaves, terminating in one sometimes two simple sessile *umbels*, of several flowers, on smooth spreading *peduncles* of unequal lengths, round, smooth, simple. *Bractea* two, leafy, lanceolate or linear lanceolate, longer than the umbels, and mostly of unequal lengths. *Flowers* nearly half an inch long, spreading. *Perianth* of six lanceolate obtusely pointed concave segments, yellow, tipped with green internally, green on the outside, with a narrow yellow margin, each with a mid-rib and several slender lateral ones. *Stamens* about as long as the perianth, with slender awl-shaped equal *filaments*, and yellow oblong two celled *anthers*, bursting laterally. *Style* erect, angular, as long as the stamens, with a gaping three-cleft *stigma*.

Habitat.—Groves and pastures; in several parts of England and lowlands of Scotland, though not very common.

Perennial; flowering in March and April.

GENUS XIV. AL'LIIUM.—LINN. *Onion. Garlic Chive.*

Nat. Ord. ASPHO'DELEÆ. R. BROWN.

GEN. CHAR. *Perianth* of six ovate pieces, campanulate, or spreading. *Stigma* simple, obtuse. *Fruit* a three angled three celled *capsule*. *Seeds* angular.—Name from *αλιω*, to avoid; on account of the strong smell of the plants, or, according to Théis, from the Celtic word *all*, which signifies *acrid, burning*.

* *Stem* leafy; *leaves* flat.

a. *Filaments* three-cleft.

1. *A. Ampelo'prasum*, Linn. (Fig. 548.) *Great Round headed Garlic*. *Stem* round, leafy to the middle; *leaves* flat; *umbels* globose, without bulbs; keel of the external pieces of the perianth rough; the three internal filaments deeply three cleft; *bractea* with a long point.

English Botany, t. 1657.—English Flora, vol. ii. p. 133.—Hooker, British Flora, vol. i. p. 159.—Lindley, Synopsis, p. 267.

Bulb globose, white, greatly increasing by lateral offsets. *Leaves* alternate, sheathing the stem to about the middle, linear, flat, flaccid, about an inch broad, and nearly two feet long, sheathing at the base,

tapering at the point, keeled at the back, which is rough, as well as the margins, with minute teeth, each having a thin membranous stipule at its base, sheathing the stem. *Stem* round, erect, from two to three feet high, smooth, terminating in a large globose simple umbel, of innumerable light purplish flowers, each on a slender long angular smooth shining peduncle, and all of nearly equal length. *Bractea* large, thin, concave, membranous, terminating in a long slender point, deciduous. *Perianth* conical, of six ovate-lanceolate concave pieces, with a rough keel and margins to the three external ones. *Stamens* rather longer than the perianth, the three outer ones with simple awl-shaped filaments, the three inner broadly dilated, cut into three slender awl-shaped segments to below the middle, the central one bearing the anther. *Style* as long as the stamens, triangular, bearing an obtuse simple stigma, the fruit a three acutely angled three celled capsule, containing black angular seeds.

Habitat.—Very rare; in open hilly places. On the Holms Island, in the Severn.

Perennial; flowering in August.

This species of *Allium* has much the habit of *A. porrum*, the leek, but is readily distinguished by its numerous cluster of perennial bulbs. The garlic onion, *A. cepa*, shallot, *A. ascalonicum*, and chives, *A. schænoprasum*, are all more or less esteemed as condiments or food, and were admitted into the list of pharmacopæial remedies, possessing a strong unpleasant smell and acrid pungent taste, more or less stimulating, diuretic and expectorant, which qualities seem to depend upon the free phosphoric acid which they contain, which is soluble in water, alcohol, acids, and alkalies, and also by heat; so that though pungent and acrid in a raw state, by cooking they become comparatively mild. The common garlic is far the most powerful in its qualities of the whole tribe; and when taken into the stomach, it acts as a strong stimulant, diffusing its powerful alliaceous odour through the whole system, not only tainting the breath, but the perspiration, milk, urine, and all the excretions of the body, are impregnated with it. It is a favourite article of consumption with the lower order of people in most parts of the Continent, and the odour which they exhale even to a person passing at a moderate distance is very disagreeable; but where a number of these people are congregated in a room it is more than conceivable.

Leeks, Onions, and Garlics, are considerably milder when grown in warm climates, than with us; their texture is not so firm, and they grow to a much larger size: and amongst the Eastern nations they form a considerable article of consumption, especially in Egypt, where they seem to have been in use from a very early period, as we find the complaining Israelites in their march, discontented, saying, in Numbers, ch. xi. v. 5, "We remember the fish, which we did eat in Egypt freely; the cucumbers, and the melons, and the leeks, and the onions,

and the *garlic*." Not only do they appear to have been cultivated as a common article of food, but were esteemed one of their greatest luxuries: for it seems from the records of these ancient people, that lest their Priests should become too luxurious, and think more of pampering their appetites than fulfilling the duties of their calling, they were forbidden the use of onions by law.

2. *A. arena'rium*, Linn. (Fig. 549.) *Sand Garlic*. Stem round, leafy to the middle; leaves flat, with cylindrical sheaths, and margins rough; umbels globose, bearing bulbs; keel of the external pieces of the perianth rough; the three internal filaments deeply three-cleft; bracteas short, obtuse; stamens shorter than the perianth.

English Botany, t. 1358.—English Flora, vol. ii. p. 134.—Hooker, British Flora, vol. i. p. 159.—Lindley, Synopsis, p. 267.

Bulb small, ovate, increasing by numerous offsets, of a purplish colour. *Leaves* alternate, sheathing the stem to about the middle, linear, flat, of a bright green, rough on the margins, and having long sheaths closely embracing the stem. *Stem* round, smooth, erect, slender, from two to three feet high, terminating in a dense globose *umbel*, bearing bulbs amongst the flowers, and having at the base three or four ovate obtuse *bractea*, mostly shorter than the umbel. *Flowers* deep red, bell-shaped, on short round smooth *peduncles*, the *perianth* of six elliptic lanceolate pieces, keeled at the back, the three outer ones of the perianth rough. *Stamens* rather shorter than the perianth, the three outer ones with simple awl-shaped sometimes twisted *filaments*, the three inner dilated, thin, membranous, deeply three-cleft, the middle segment half as long as the others, and bearing the anther. *Anthers* dark coloured. *Style* shorter than the stamens. *Capsules* rarely perfected, a circumstance which seems general, in those plants that bear bulbs, by which the plant may be propagated.

Habitat.—Sandy soil in shady mountainous districts and fields, chiefly in the North of England; in Perthshire and Angus-shire, Scotland; Portmarnock and Feltrum hill, and South Isles Arran, Ireland.

Perennial; flowering in July.

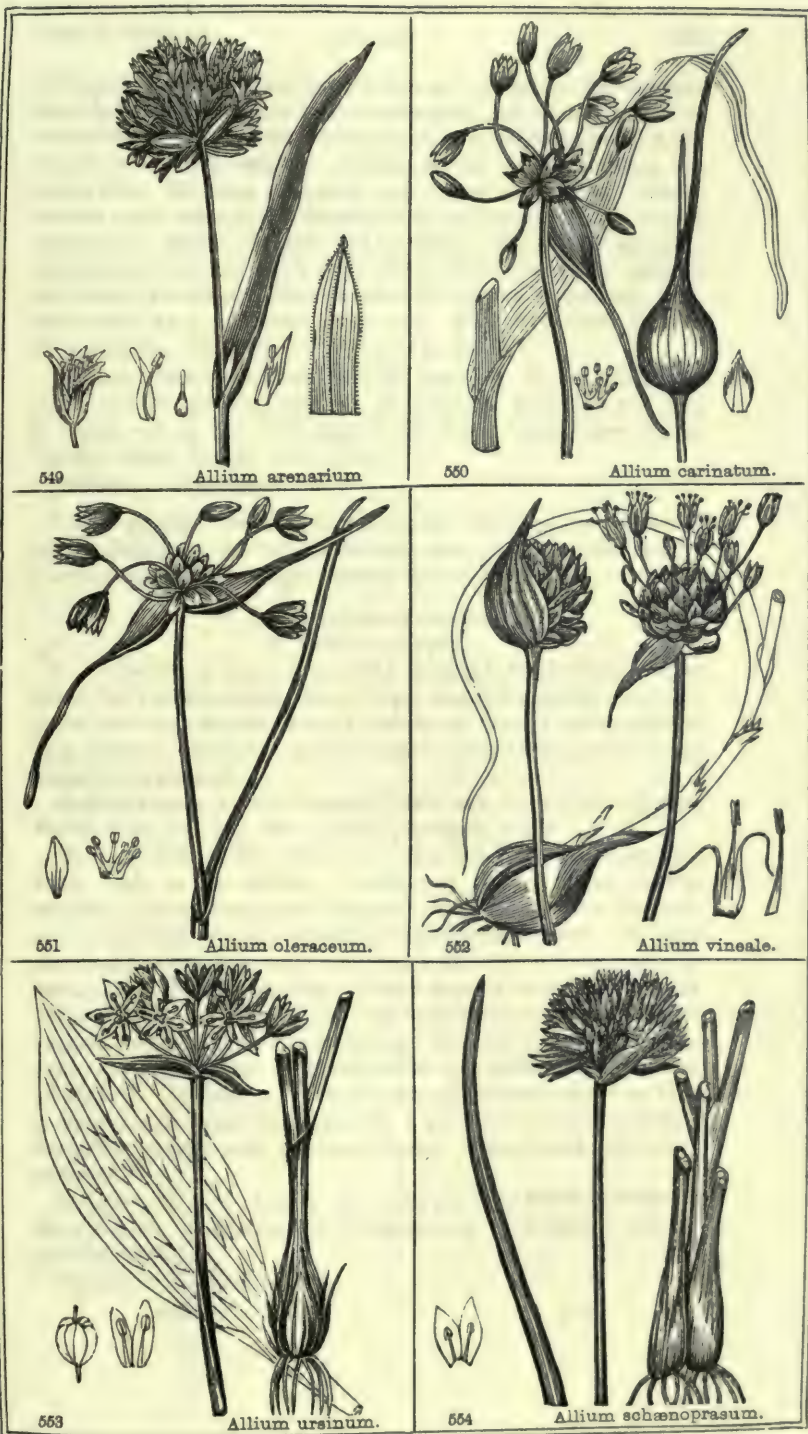
Between this species and *A. Scorodoprasum*, Linn. there does not appear any good distinctive character.

b. Filaments simple.

3. *A. Carina'tum*, Linn. (Fig. 550.) *Mountain Garlic*. Stem round, leafy to the middle; leaves linear, flat, keeled and slightly channeled above, numerous striated below; umbels lax, bearing bulbs; bracteas long, tapering, persistent; stamens simple, nearly as long as the obtusely acute pieces of the perianth.

English Botany, t. 1658.—English Flora, vol. ii. p. 135.—Hooker, British Flora, vol. i. p. 159.—Lindley, Synopsis, p. 268.

Bulb roundish. *Stem* about three feet high, round, smooth, finely



striated, the lower half sheathed with leaves. *Leaves* flat, linear, somewhat fleshy, solid, obtusely keeled at the back, and concave above, or channeled, the margins slightly thickened and rough below, and the sheaths numerous striated. *Bractea* of two persistent pieces, one rather short, the other contracted into a long slender beak. *Umbel* bearing bulbs amongst the flowers, which are elevated on long slender *peduncles* of unequal lengths, and spreading. *Perianth* of six equal pieces, ovate, acute, of a dirty white colour, and a brown keel. *Stamens* with simple awl-shaped *filaments*, about as long as the perianth, pale, and united by a membrane at its base. *Style* very short, with an obtuse *stigma*. *Capsule* and *seeds* rarely perfected.

Habitat.—Sandy and mountainous situations on the south-east coast, and the northern counties of England; banks of the Isla, Scotland, and on the north side of the Royal Canal above Phibsborough bridge, Ireland.—*Dr. Scott*.

Perennial; flowering in July.

"This species," Smith says, "is nearly related to the following, though differing in the flatter form of its leaves, and somewhat in size. I have doubts of their being essentially distinct."

** *Stem leafy, leaves rounded.*

a. *Filaments simple.*

4. *A. oleraceum*, Linn. (Fig. 551.) *Streaked Field Garlic*. Stem round, leafy to the middle; leaves linear, rounded, fistulose, channeled above, below numerous striated; umbels lax, bearing bulbs; bractees long, tapering, persistent; stamens simple, nearly as long as the obtuse pieces of the perianth.

English Botany, t. 488.—English Flora, vol. ii. p. 136.—Hooker, British Flora, vol. i. p. 160.—Lindley, Synopsis, p. 268.

Bulb roundish. *Stem* from two to three feet high, smooth, striated, erect, leafy to the middle. *Leaves* very narrow, linear, hollow, rounded, flattened above, and somewhat channeled, round at the back, and numerous striated, and more or less roughish all over. *Bractees* two mostly unequal pieces, persistent, thin and dilated at the base, the point, long, slender, tapering. *Umbel* bearing bulbs amongst the flowers, which are elevated on long slender *peduncles*, generally of unequal lengths, waved and spreading. *Perianth* of six equal pieces, ovate, obtusely pointed, of a dirty white or pinkish colour, with an obtuse keel. *Stamens* on simple awl-shaped *filaments*, about as long as the perianth, united at the base by a pale thin narrow membrane. *Style* short, simple, with an obtuse *stigma*. *Capsules* and *seeds* rarely perfected.

Habitat.—Borders of fields and waste places in Essex, Gloucestershire, Norfolk, Yorkshire, and Westmoreland, in England; and St. David's, Scotland.

Perennial; flowering in July.

This species, though nearly allied to the former, differs in narrower hollow channeled leaves, and the segments of the perianth being obtuse and not pointed, it is also found mostly in cultivated fields, and not in mountainous situations, as the other most frequently is.

b. Filaments three-cleft.

5. *A. vine'ale*, Linn. (Fig. 552.) *Crow Garlic*. Stem round, leafy to the middle; leaves linear, round, fistulose; umbel bearing numerous bulbs; stamens longer than the perianth; three interior filaments, three-cleft.

English Botany, t. 1974.—English Flora, vol. ii. p. 137.—Hooker, British Flora, vol. i. p. 160.—Lindley, Synopsis, p. 268.

Bulb small, ovate, white. *Stem* round, smooth, slender, finely striated, erect, or somewhat curved at the base, from one and half to three feet high, leafy to about the middle. *Leaves* long, round, smooth, slender, tapering, and often withering before the umbel is expanded, hollow, finely striated in the lower part at the back, and enveloping the stem in striated sheaths. *Bractea* of two short deciduous pieces, membranous. *Umbel* small, globose, with numerous crowded bulbs, frequently without the intermixture of *flowers*, which when present are not very numerous, elevated on slender purplish *peduncles*, swelling upwards, long, but of irregular lengths. *Perianth* of six ovate obtuse small segments, with green keels. *Stamens* with *filaments* longer than the perianth, the three outer ones simple, awl-shaped, sometimes twisted, the three inner dilated, thin, and membranous, deeply divided into three slender awl-shaped segments, the central ones shorter than the others, and bearing the small oblong purplish *anther*, of two cells, bursting laterally. *Style* very short. *Capsules* rarely or never formed.

Habitat.—Dry pastures, corn fields, and waste places; not unfrequent throughout England, the South of Scotland, and about Dublin, in Ireland.

Perennial; flowering in June.

*** *Stem naked, leaves all radical.*

6. *A. ursinum*, Linn. (Fig. 553.) *Broad-leaved Garlic, or Ramsons*. Scape naked, obtusely triangular; leaves elliptic, lanceolate, on long footstalks; umbel simple, lax, without bulbs, nearly plane; stamens simple, shorter than the perianth.

English Botany, t. 122.—English Flora, vol. ii. p. 137.—Hooker, British Flora, vol. i. p. 160.—Lindley, Synopsis, p. 268.

Bulb white, oblong, thin. *Leaves* one, two, or three, all arising from the bulb, on slender obtusely angular footstalks, of variable lengths, tapering into the mid-rib of the elliptic lanceolate leaf, which is nearly plane, smooth, shining, bright green, with numerous slender lateral parallel veins, connected with still more slender reticulations. *Scape* obtusely triangular, solitary, erect, about as long as the leaves, smooth, and terminating in a simple *umbel*, having at the base a pale

thin membranous *bractea*, cleft into two or three segments, *peduncles* about an inch long, angular, all nearly equal, the margins roughish, numerous, lax, each bearing a white *flower*, of six elliptic lanceolate pieces, spreading, and each bearing at its base a simple *stamen*, shorter than itself, with an awl-shaped *filament*, and rather small yellow *anther*. *Style* short, stigma obtuse. *Capsule* turbinate, of three obtusely angular lobes, three *celled*, each cell containing several roundish *seeds*.

Habitat.—Moist woods, hedges, and shady places; frequent.

Perennial; flowering in June.

This species of *Allium* is better known to the farmer than admired, for in the meadows or fields where it grows it is a great pest and annoyance, from the circumstance that it communicates to the milk and butter of the cows which graze in them, the unpleasant nauseous flavour of the plant, which the cattle devour without discrimination, when first turned into the tender spring herbage, so that unless the plant is removed, the produce of the cows is almost useless. It is a very pretty showy white flower, but the pleasure of seeing it growing in the hedges and field sides is not increased by gathering, for so pregnant is the whole plant with its disagreeable odour, that upon bruising any part of it the powerful scent is disclosed, and renders it disgusting.

7. *A. Scheno'prasm*, Linn. (Fig. 554.) *Chive Garlic*. Stem naked, rounded; leaves linear, round, fistulose, taper pointed; umbel subglobose, without bulbs; stamens simple, shorter than the lanceolate acute segments of the perianth.

English Botany, t. 2441.—English Flora, vol. ii. p. 138.—Hooker, British Flora, vol. i. p. 160.—Lindley, Synopsis, p. 268.

Bulbs oblong, very slender, numerous, crowded into dense tufts. *Leaves* several, arising from the bulb, or some of them sheathing the base of the stem, erect, about a foot long, round, hollow, tapering to the point, smooth, a glaucous green, sheathed at the base. *Stem* erect, round, smooth, slender, about as long as the leaves, terminating in a somewhat globose *umbel*, of purplish rose-coloured flowers, enveloped at the base in a membranous *bractea*, of two ovate short pieces. *Flowers* elevated on short *peduncles*, mostly of the same length. *Perianth* of six elliptical acutely pointed pieces, keeled at the back, and each bearing at its base a *stamen*, shorter than itself, with simple awl-shaped *filaments*, and rather small ovate *anthers*, of two cells. *Style* short. *Stigma* obtuse.

Habitat.—Meadows, pastures, and humid places; rare. Westmoreland, Berwickshire, Argyleshire, and above Kynance Cove, Cornwall.

Perennial; flowering in June.

This species is frequently cultivated, having similar properties with the rest of the *Alliums*, but is much milder than the garlic, and is used in the place of onions (either raw or dressed) before they are in season.

GENUS XV. ANTHER'ICUM.—LINN. *Spiderwort.*

Nat. Ord. ASPHO'DELEE. R. BROWN.

GEN. CHAR. *Perianth* of six equal spreading elliptical deciduous pieces, each with a gland near the base. *Stamens* with filiform simple or mostly bearded *filaments*. *Capsule* roundish, three celled. *Seeds* few, angular.—Name from *ανθηριος*, applied by the Greeks to the stem of the *Asphodel*.

1. *A. serotinum*, Linn. (Fig. 555.) *Mountain Spiderwort*. Leaves semi-cylindrical, the lower ones on the stem dilated at the base; flowers mostly solitary.

English Botany, t. 793.—English Flora, vol. ii. p. 150.—Hooker, British Flora, vol. i. p. 162.—Lindley, Synopsis, p. 269.—*Lloydia serotina*, Salisbur.—*Phalangium serotinum*, Lam. Diet.

Roots long, branched, fibrous from the base of the slender *bulbs*, and with short creeping underground stems, bearing small bulbs at the extremity, (the infant plant of another year). The whole plant smooth, except a slight roughness in the lower part of the stem. *Leaves* nearly round, linear, of a deep shining green, keeled at the back with a slender rib on each side, the *radical* ones mostly two, longer than the stem, flaccid, those of the *stem* short, rigid, erect, three or four in number, the upper ones almost like bractea, flattened at the base, and somewhat sheathing the stem. *Stem* erect, from four to six inches high, round, slender, scarcely striated, bearing at its extremity a solitary *flower*, white, the outer side marked with branched reddish purple veins, sometimes green, which Mr. W. Wilson observes changes to a purple after impregnation takes place, the *perianth* of six lanceolate erect or somewhat spreading pieces, each having a little above its base a rather large yellow gland. *Stamens* on slender *filaments*, simple, slender, about half as long as the *perianth*. *Anthers* roundish. yellow, of two cells, bursting laterally. *Style* short, stout, erect. *Stigma* obtuse, of three angles. *Capsule* roundish oblong, membranous, of three cells. *Seeds* few, angular, wrinkled, brown.

Habitat.—The highest Welsh mountains; rare. On Snowdon Crib-y-Ddscil, near Llanberris; and Cwne Idwal, Carnarvonshire. On rocks by Twll dŷ, and near the summit of Glyder Fawr.—Mr. W. Wilson.

Perennial; flowering in June.

GENUS XVI. TULIP'A.—LINN. *Tulip.*

Nat. Ord. LILIA'CEÆ. JUSS.

GEN. CHAR. *Perianth* campanulate, of six equal pieces. *Stigmas* thick, sessile, three lobed. *Capsule* oblong, three cornered. *Seeds*



flat.—Name from the Persian word *toliban*, a *Turban*, from the gay and varied colours of its flowers, similar to a Turk's turban.

1. *T. sylvestris*, Linn. (Fig. 556.) *Wild Tulip*. Stem smooth, single flowered; the base of the inner segments of the perianth and the filaments downy; stigma obtuse; leaves alternate, linear lanceolate.

English Botany, t. 63.—English Flora, vol. ii. p. 140.—Hooker, British Flora, vol. i. p. 163.—Lindley, Synopsis, p. 266.—Nat. Ord. *Tulipaceæ*, De Cand.—*Hemorocallidææ*, R. Brown.

Bulb ovate, swollen on one side, and enveloped in loose dark brown dry membranous coats. *Stem* erect, except being slightly curved at the top, round, smooth, simple, leafy to about the middle, from one to one and half feet long. *Leaves* two to four, linear lanceolate, tapering at both ends, smooth, somewhat fleshy, a glaucous green, the lower ones tapering into a footstalk of variable length, the upper ones forming a close sheath round the stem, and the top one half embracing it. *Flower* solitary, terminating the stem, a bright yellow, tinged with green on the outside, sweet scented, the *perianth* of six ovate acuminate pieces, bearded at the points, and also the margins towards the base of the three inner ones, with pale soft woolly hairs. *Stamens* six, inserted into the base of the perianth, the *filaments* half as long as the perianth, contracted and downy at the base, thin and dilated upwards, with a slender point. *Anthers* large, yellow, erect. *Stigma* sessile, thick, acutely triangular. *Capsule* oblong, three angled, three celled, many seeded, the *seeds* flat in two rows, close pressed one upon another. The plant is also increased from the bulb, by its putting out long underground stems, which form a bulb at the extremity, and thus at some distance from the parent plant its progeny springs up.

Habitat.—Chalky and sandy districts, especially in Norfolk, Suffolk, Herefordshire, and Middlesex. Plentiful in Nottingham meadows, but the bulbs are mostly too deep in the soil to produce flowers. Near Hamilton and Brechin, and at Bennie Craig, Firth of Forth, Scotland.

Perennial; flowering in April.

This is readily distinguished from the common Garden Tulip by the points of the perianth being hairy, its hairy filaments, and its simple obtuse stigma. Of the common Garden Tulip, *T. Gesneriana*, there are many hundred varieties of all shades and mixtures of colours, much care, trouble, and labour, being sometimes bestowed upon its growth and cultivation; indeed the rage at one time for them was such as to have obtained for it not inaptly the term of Tulipamania, and the bulbs of some varieties were valued at such an enormous price, as not unfrequently to be bought and sold at upwards of £500 each; in fact they became the medium of a species of commercial gambling of the Dutch in the 17th and 18th centuries. Still we can with the poet Kleist say—

“ Who thus, O Tulip! thy gay painted breast,
In all the colours of the sun hath drest?

Well could I call thee in thy gaudy pride ·
 The Queen of Flowers ; but, blooming by thy side
 Her thousand leaves that beams of love adorn,
 Her throne surrounded by protecting thorn,
 And smell eternal form a juster claim,
 Which gives the heaven born Rose the lofty name,
 Who having slept throughout the wintry storm,
 Now through the opening buds displays her smiling form."

GENUS XVII. FRITILLARIA.—LINN. *Fritillary*.

Nat. Ord. LILIA'CEÆ. JUSS.

GEN. CHAR. *Perianth* campanulate, of six pieces, each with a nectariferous cavity at the base. *Stigmas* three, spreading. *Capsule* oblong, three celled, three valved. *Seeds* flat.—Name from *fritillus*, a *Dice-board*, from the chequered markings of the flowers.

1. *F. Melea'gris*, Linn. (Fig. 557.) *Common Fritillary*. Stem one or two flowered, leafy ; leaves linear lanceolate, alternate ; points of the perianth acute, inflexed, each at its base with a linear pore.

English Botany, t. 622.—English Flora, vol. ii. p. 139.—Hooker, British Flora, vol. i. p. 163.—Lindley, Synopsis, p. 266.

Bulb small, roundish, depressed. *Stem* erect, about a foot high, round, smooth, simple, leafy to near the top. *Leaves* linear lanceolate, sessile, with an acute point, alternate, and mostly at regular distances from each other, more or less channeled and recurved, of a somewhat glaucous green. *Flowers* solitary or in pairs, terminal, drooping, bell-shaped, inodorous, beautifully marked in a tessellated manner, with light and dark purple squarish spots, regularly arranged in an alternate manner, frequently of a pale colour, almost white, but still chequered more or less distinctly. *Perianth* about an inch long, or longer, of six equal oblong concave pieces, acutely pointed, the points turned inwards, thickened and somewhat fleshy at the base, where it has on its inner surface a linear nectariferous pore. *Stamens* six, about half as long as the perianth. *Filaments* slender, awl-shaped, bearing large oblong yellow *anthers*, of two cells, bursting laterally. *Style* erect, longer than the stamens, simple, terminating in three oblong spreading *stigmas*. *Capsule* oblong, obtusely three angled, three celled, and opening with three valves. *Seeds* numerous, flat, crowded in two rows.

Habitat.—Meadows and pastures in the Eastern and Southern Counties of England.

Perennial ; flowering in April.

The Fritillary, also called Chequered Daffodil and Snake's head, is so common in some parts of Suffolk and Norfolk as to be a troublesome weed ; but the beauty and elegance of the flowers, has rendered it a favourite garden plant in places where it is less common. It fre-

quently by cultivation expands its stamens into petals and becomes double, and it also varies in colour from dark reddish purple to pink and white.

GENUS XVIII. ACO'RUS.—LINN. *Sweet Sedge.*

Nat. Ord. AROIDEÆ. JUSS.

GEN. CHAR. *Flowers* arranged upon a spadix. *Spatha* wanting. *Perianth* of six persistent pieces or scales. *Stamens* opposite the divisions of the perianth. *Stigmas* obtuse, sessile. *Fruit* a dry three celled, three valved, many seeded capsule.—“Named from *a*, without; and *κοριον*, or *κορη*, the pupil of the eye, the diseases of which it was supposed to remove.”—Hooker.

1. *A. Calamus*, Linn. (Fig. 558.) *Common Sweet Sedge, or Flag.* End of the scape rising much above the spadix, long and leafy.

English Botany, t. 356.—English Flora, vol. ii. p. 157.—Hooker, British Flora, vol. i. p. 163.—Lindley, Synopsis, p. 146.

Rhizoma thick, large, fleshy, or somewhat spongy, putting out numerous long branched fibres, strongly aromatic, much more so than the stems and leaves. *Scape* compressed, striated, from two to three feet long, bearing the spadix of flowers about the middle or below that; about the spadix it is similar to the leaves. *Leaves* linear lanceolate, about as long as the scape, sword-shaped, smooth, finely striated, of a bright green colour. *Spadix* generally about three inches long, cylindrical, tapering at the point, thickly crowded with sessile deciduous flowers. *Perianth* of six obtuse or acutely pointed pieces, concave, keeled at the back, somewhat thickened at the base. *Stamens* with thick equal filaments, as long as the perianth. *Anther* small, yellow, of two lobes, bursting laterally. *Stigmas* sessile, of three lobes. *Capsule* obtusely triangular, membranous, of three cells, or one by abortion. *Seeds* mostly several, ovate oblong.

Habitat.—Banks of rivers and watery places, in the Middle and Southern Counties of England; abundant in Norfolk and Suffolk. Rare in Scotland, Ayrshire, Loch Winnoch, Renfrewshire.—Mr. Paterson. Castle Semple Loch.—Dr. Logan.

Perennial; flowering in May and June.

The Sweet Smelling Flag has been long used as a medicine. The root has a moderately strong aromatic smell, is bitter, and forms an agreeable tonic, which has been exhibited beneficially in cases where a warm stomachic is wanted, and also in chronic catarrh and some of the forms of asthma. The odour of the plant depends upon an essential oil, which is more abundant in the fleshy rhizoma than any other part of the plant, and is in combination with the bitter principle and farinaceous matter; by drying it loses in a greater part its bitterness,

but retains the odour, and on this account it is found useful as entering into the composition of hair powder, tooth powder, &c., and many other of the perfumer's compounds. The leaves and stems of this plant have been, as we are informed by Smith, used from time immemorial to strew the floor of the Norwich Cathedral on the Mayor's day in June, as well as some of the streets, and in the formation of various decorations; and when trodden upon and bruised it gives out its odour, and pleasantly perfumes the buildings and streets; but latterly from the plant becoming less abundant, it is mixed with the leaves of the *Iris Pseu d'acorus*, p. 43, or the larger kinds of *Carex*. It is the common practice in Italy, and other parts of the Continent, to strew the floors of the Churches and the principal streets leading to them with the branches of Myrtle, (*Myrtus communis*), and other plants, on the morning of the celebration of any *festa*, and the trampling upon them scents the air with their pleasant aroma, in the same way as that of the Sweet Flag.

GENUS XIX. NARTHECIUM.—HUDS. *Bog Asphodel.*

Nat. Ord. JUN'CEÆ. JUSS.

GEN. CHAR. *Perianth* of six pieces, glumaceous. *Stamens* six, inserted into the base of the segments of the perianth. *Filaments* persistent, woolly. *Style* short. *Stigmas* angular. *Ovary* pyramidal. *Fruit* a three celled, three valved capsule. *Seeds* numerous, with a filiform appendage at the base and apex.—Named from *ναρθης*, a rod.

1. *N. ossi fragum*, Huds. (Fig. 559) *Bog Asphodel*. Leaves radical, linear, uniform; pedicle with a bractea at the base, and another above its middle; stamens shorter than the perianth, and the capsule longer.

English Botany, t. 535.—English Flora, vol. ii. p. 151.—Hooker, British Flora, vol. i. p. 163.—Lindley, Synopsis, p. 277.—*Anthericum ossifragum*, Linn.—*Abama ossifraga*, De Cand, *Fl. Fran.*

Root with creeping underground stems, and numerous long branched fibres. *Stem* ascending from four to eight inches high, roundish, smooth, finely striated, clothed especially in the lower part with alternate striated somewhat keeled sheath-like scales, abortive leaves, much smaller, and more distant in the upper part of the stem. *Leaves* in radical tufts, about half as long as the stem, two ranked, linear, sword-shaped, striated, with nearly equi-distant slender ribs, a fine dark green, smooth, *Inflorescence* a terminal racemose spike, of numerous yellow flowers, each on a pedicle, arising alternately from the base of a linear bractea about its own length, and from above the middle of the pedicle is another smaller one. *Perianth* of six linear equal spreading pieces, of a bright yellow, thickened at the back, and of a greenish colour, persistent. *Stamens* shorter than the perianth, with stout filaments,

acutely pointed, and thickly clothed with a soft woolliness, *Anther* oblong, of two cells, bursting laterally, of a fine scarlet colour, becoming brown and twisted. *Style* tapering. *Stigmas* obtuse, three angled. *Capsule* oblong, tapering to a point, obtusely triangular, three valved, three celled, longer than the perianth, which surrounds it. *Seeds* numerous, small, oblong, erect, with a thin membranous coat, tapering at both ends into an elongated point.

Habitat.—Humid places on moors and mountains; frequent.

Perennial; flowering in July and August.

This very pretty little plant, like many others growing in similar damp situations, has been accused of causing the rot in sheep, but the supposition is unfounded in reason or fact—unless the flourishing growth of this and similar plants be taken as a warning of the effects that may be produced by allowing sheep to remain too long in such situations as those in which the plants grow. It was also formerly supposed to produce softness in the bones of cattle; but this notion founded equally upon false principles is untenable, nor is there we believe now any credence generally given to it.

GENUS XX. JUN'CUS.—LINN. *Rush*.

Nat. Ord. JUN'CEE. JUSS.

GEN. CHAR. *Perianth* of six pieces, glumaceous. *Stamens* six (rarely three). *Capsule* three celled, three valved, having the dissepiments in their middle. *Seeds* numerous, attached to the dissepiments.—Name from *jungo*, to join; the leaves and stems of some of the species having been used as cordage.

* *Barren stems, resembling leaves, sheathed below, and enveloping the base of the flowering stems. Inflorescence a terminal corymbose panicle, with spreading or aggregate flowers. Seeds appendiculated at each end.*

1. *J. maritimus*, Smith. (Fig. 560.) *Lesser Sharp Sea Rush*. Stem naked, barren stems, round, long, pungent; outer bractea round and pungent above; panicle large, very compound; segments of the perianth lanceolate, the external acute, the internal obtuse, entire; capsule elliptical, mucronate, as long as the perianth.

English Botany, t. 1725.—English Flora, vol. ii. p. 159.—Hooker, British Flora, vol. i. p. 165.—Lindley, Synopsis, p. 273.—*J. acutus*, var. β . Linn.

Root of dense tufts of long fibres. *Stems* nearly erect, from three to four feet high, round, smooth, finely striated, gradually tapering upwards, of a glaucous green, naked, except at the base being enveloped in the thin dilated leafy sheaths, of one or two barren stem-like leaves, mostly of a dark shining purplish colour, as are the membranous scales

external of these. *Barren stems* long, round, thin, wiry, tapering upwards into a hard sharp point. *Inflorescence* a large terminal panicle, much divided, its branches somewhat compressed, erect, of unequal lengths, the principal branches bearing subcymose clusters of from four to eight flowers. *Bractea* various, two at the base of the panicle much the largest, terminating in a round pungent point, the external one much the largest, and generally longer than the inflorescence, the base dilated, thin, and sheathing, and at each division of the panicle are two or more lanceolate membranous striated ones, the keel terminating in a point. *Perianth* of six pieces, lanceolate, the three external ones acutely keeled, terminating in a point, green, with membranous margins, the internal ones three ribbed at the base, obtusely pointed and rather shorter than the others. *Stamens* shorter than the perianth, *Filaments* shorter than the oblong *anthers* yellow, of two cells, bursting laterally. *Style* very short, with three spreading feathery *stigmas*. *Capsule* elliptical, obtusely triangular, as long as the perianth, terminated in a sharp point, three celled, three angled. *Seeds* numerous, ovate, invested with a loose membranous covering, elongated at each end.

Habitat.—Salt marshes in various parts of England, but not common. St Andrew's, Isle of Arran, and the Coast of Ayrshire, Scotland. Kingstown, Bullock, near Cork, and various other places in Ireland.

Perennial; flowering in August.

2. *J. acutius*, Linn. (Fig. 561.) *Great Sharp Sea Rush*. Stem naked, barren stems, long, round, pungent; outer bractea round and pungent above; panicle large, very compound, conglobose; segments of the perianth lanceolate, the inner ones with an ovate obtuse emarginate point; capsule roundish, ovate, acuminate, half as long again as the perianth.

English Botany, t. 1614.—English Flora, vol. ii. p. 159.—Hooker, British Flora, vol. i. p. 165.—Lindley, Synopsis, p. 273.

This species is nearly allied to the former, from which it differs in being a larger stouter plant, not unfrequently growing from seven to eight feet high, but from four to six is its more common size. The *panicle* is larger, more compound, but more compact, and conglobose, the *perianth* has the three outer segments lanceolate, acute, obtusely carinated, with a green keel, the inner ones lanceolate, ovate, with an obtuse membranous point, more or less deeply notched, and only about half as long as the *capsule*, which is of a fine deep brown shining colour, roundish, ovate, with an acuminate point.

Habitat.—Sandy sea shores, especially in the South and West of England; Wicklow and Acklow, Ireland, and mostly grows with the former, but much less common.

Perennial; flowering in July.

Both these species are found as frequent, or more so, especially



561 *Juncus acutus.*



562 *Juncus glaucus.*



563 *Juncus effusus.*



564 *Juncus conglomeratus.*



565 *Juncus filiformis.*



566 *Juncus balticus.*

J. acutus, on the Continent, than with us; and Smith observes in English Botany, t. 1614, that the leaves of the *J. acutus* might well serve Homer's frogs and mice for spears; and it is probably the rush he had in view, being common, as Dr. Sibthorp observed, on the shores of Greece.

Juncus acutus and *maritimus* are plants, though without the appearance of attraction, of the greatest utility, and their growth is much encouraged in many parts of the country on the banks of rivers and the sea coasts, where they spread out their long fibrous roots and underground stems into the sand, and these, together with their rigid stems, resist the encroachments of the waters, and form barriers for the protection and increase of the land. In many parts of the country, and especially on the Continent, these rushes, in conjunction with the mat-grasses and sedge, make for themselves embankments, and are the first vegetation to luxuriate on the new formed soil, and prepare it for the nourishment and growth of other plants.

** *Barren stems, resembling leaves, or wanting, sheathed below, and enveloping the base of the flowering stems. Inflorescence a lateral panicle, with spreading or aggregate flowers. Seeds not appendiculated.*

3. *J. glaucus*, Sibth. (Fig. 562.) *Hard Rush*. Stem naked, deeply striated, sheaths at the base leafless; panicle much branched; segments of the perianth lanceolate, subulate, nearly equal; capsule elliptic, oblong, obtuse, mucronate.

English Botany, t. 665.—English Flora, vol. ii. p. 160.—Hooker, British Flora, vol. i. p. 164.—Lindley, Synopsis, p. 273.—*J. inflexus*, Leers. *Withering*.

Root with creeping underground stems, black, and with long stout branched fibres. *Stems* erect, numerous, tufted, from one to two feet high, round, smooth, slender, tapering upwards, deeply striated, of a glaucous green, enveloped at the base in several membranous sheaths, of a dark brown shining colour, obtuse at the point. *Panicle* mostly about the middle of the stem, much branched, with angular spreading branches, each division having at its base one or two palish thin lanceolate membranous bractea, tapering into a point. *Perianth* of six lanceolate awl-shaped pieces, of nearly equal lengths, of a pale shining brown colour, marked at the back with a green keel. *Stamens* shorter than the perianth. *Anthers* long, elliptic, yellow. *Style* short. *Stigmas* spreading. *Capsule* elliptic, oblong, three angled, obtuse, with a hard point the base of the style, about as long as the perianth, of a dark shining brown, three celled, three valved, and many seeded, the seeds small, brown, angular.

Habitat.—Wet meadows and pastures, road sides and banks; not uncommon.

Perennial; flowering in July.

4. *J. effusus*, Linn. (Fig. 563.) *Soft Rush*. Stem naked, very

smooth, slightly striated below; sheaths at the base leafless; panicle loose, much branched; segments of the perianth lanceolate, very acute, rather longer than the obovate obtuse capsule.

English Botany, t. 836.—English Flora, vol. ii. p. 162.—Hooker, British Flora, vol. i. p. 164.—Lindley, Synopsis, p. 273.

Root with somewhat creeping underground stems, and long stout branched fibres. *Stems* erect, numerous, tufted, from one to two feet high or more, round, smooth, soft and pliant, not rigid as the last, tapering upwards, of a paler green, scarcely striated, except in the lower part, the base enveloped in several striated smooth shining reddish brown acutely pointed short leafless sheaths. *Panicle* above the middle of the stems, very much branched and spreading, with very numerous flowers, each division of the branches having at the base one or two pale thin membranous lanceolate *bractea*. *Perianth* of six lanceolate nearly equal pieces, tapering into a very acute point, pale green, the three outer ones with an obtuse keel, broad at the base, tapering into the point, the inner ones with two distant ribs. *Stamens* shorter than the perianth, six sometimes, but rarely three. *Filaments* slender. *Anthers* yellow, oblong. *Style* very short, or wanting. *Stigmas* spreading. *Capsule* obovate, obtuse, marked at the top by the base of the style, rather shorter than the perianth, smooth, shining, three celled, three valved, and many seeded.

Habitat.—Wet meadows and boggy places; frequent.
Perennial; flowering in July.

5. *J. conglomeratus*, Linn. (Fig. 564.) *Common Rush*. Stem naked, smooth, faintly striated; sheaths at the base leafless; panicle much branched, dense, globular; segments of the perianth lanceolate, very acute, rather longer than the broadly ovate obtuse capsule; stamens three.

English Botany, t. 835.—English Flora, vol. ii. p. 161.—Hooker, British Flora, vol. i. p. 164.—Lindley, Synopsis, p. 273.

Root with creeping underground stems, and numerous long stout branched fibres. *Stem* erect, round, smooth, green, numerous and very finely striated, erect, from one to three feet high, tapering upwards, tufted, and the base enveloped in several smooth shining leafless sheaths, obtuse, with a slender bristle-like point. *Panicle* above the middle of the stem, of numerous much divided angular branches, forming a dense globule of flowers, each division of the branches having one or two pale membranous striated lanceolate *bracteas*. *Perianth* of six equal lanceolate very acute pieces, pale and membranous on the margins, with a green keel at the back, tapering into the point. *Stamens* always three, shorter than the perianth, with yellow oblong *anthers*, the *style* very short. *Stigmas* spreading, and the *capsule* broadly obovate, three angled, obtuse, with a small obtuse point, three celled, three valved, and many seeded, the *seeds* small, pale brown, angular.

Habitat.—Wet meadows and marshy places ; frequent.
Perennial ; flowering in July.

The three last are those only of our rushes that are used for domestic purposes ; but the uses to which they are now applied are few, compared to what they were formerly, for they seem to have been an article of great luxury, and were spread over the floors of palaces, in the place of carpets, even until the time of Henry VIII., and were applied to many other purposes ; but now their use is almost limited to the making of door mats, baskets, and chair bottoms, and the white internal substance for making the wicks of a kind of candle, hence called *rush light*.

6. *J. filiformis*, Linn. (Fig. 565.) *Thread Rush*. Stem naked, thread shaped, finely striated ; sheaths at the base leafless ; panicle simple, of few flowers ; segments of the perianth lanceolate, acute, nearly equal, longer than the roundish obtuse short pointed capsule ; stamens six.

English Botany, t. 1175.—English Flora, vol. ii. p. 162.—Hooker, British Flora, vol. i. p. 164.—Lindley, Synopsis, p. 274.

Root with creeping underground stems, and very long stout branched fibres. *Stems* tufted, very thin and slender, about a foot high, curved, or somewhat drooping above, slightly glaucous green, smooth, very finely striated in the lower part, and enveloped with numerous sheaths of variable lengths, lanceolate, or terminating in a fine point, others sometimes lengthened into leaf-like barren scapes. *Panicle* about the middle of the stem, small, simple, of about eight flowers, on short slender stalks. *Perianth* of six nearly equal lanceolate acute segments, of a greenish colour, somewhat ribbed on the obtuse keel. *Stamens* six, shorter than the perianth. *Style* very short, with spreading stigmas. *Capsule* roundish ovate, very obtuse, with a short mucronate point, shorter than the perianth, three celled, three valved, with numerous small angular pale seeds.

Habitat.—Moist, stony, or grassy places in mountainous districts, but not common. On the margins of lakes in Cumberland, Westmoreland, and Lancashire. Ben Lawers—*Mr. Dixon*, and several parts of Scotland—*Mr. G. Don* ; but Sir W. J. Hooker observes, " I have never seen Scottish specimens.

Perennial ; flowering in July and August.

7. *J. Balticus*, Willd. (Fig. 566.) *Baltic Rush*. Stem naked smooth, obscurely striated ; sheaths at the base leafless ; panicle erect, loose, branched ; segments of the perianth lanceolate, acute, the inner ones rather shorter and more obtuse, as long as the elliptical obtuse mucronate capsule.

Hooker in Botany, English Suppl. t. 2621.—Hooker, British Flora, vol. i. p. 164.—Lindley, Synopsis, p. 274.—*J. arcticus*.—Hooker in Flora Lond. t. 151.—English Flora, vol. ii. p. 163. (*exclu. squ. Willd. and Wahl.*)

Roots with very long creeping underground stems, putting out numerous flowering stems in long rows, roots long, stout, fibrous, branched. *Stems* from eighteen inches to two feet high, erect, round, smooth, finely and obscurely striated, more or less spirally, slender, tapering upwards into a sharp point, and enveloped at the base in numerous smooth shining pale brown dry membranous sheaths, obtuse, the upper larger ones terminating in a bristly point. *Panicle* from three to five inches below the summit, erect, small, some of the flowers on simple footstalks, others elevated on from one to three angular branches, having ovate-lanceolate pale brown shining membranous bractees at the axis of the division, as have also the flowers at their base. *Perianth* of six ovate-lanceolate nearly equal pieces, a dark smooth shining brown colour, the three outer ones with a broad keel terminating in the point, the three inner ones rather shorter, obtusely pointed, the keel narrower, and terminating in a bristly point. *Stamens* about half as long as the perianth, the *filaments* short. *Anther* large, elliptical, yellow. *Style* erect, its base persistent, and forming a mucro to the *capsule*, which is rather shorter than the perianth, elliptical, ovate, scarcely angular, obtuse, the sides marked with inequalities, apparently from the pressure of the seeds, smooth, shining, a dark chestnut brown, three *celled*, three *valved*, and many seeded, the *seeds* small, ovate, brown.

Habitat.—Sandy sea shores in Scotland; very rare. Near Dundee.—*Mr. T. Drummond*. Farr and Cape Wrath, Sutherland.—*Dr. Graham*. Aberdeenshire.—*Dr. A. Murray*. Stotfield, six miles from Elgin, and between Findhorn and Spey, on the banks of the Lossie, seven miles from the sea; and at St. Andrew's, Llanbridge, where the sea formerly reached.—*Rev. G. Gordon*.

Perennial; flowering in July.

This species is nearly allied to the *J. arcticus*, Willd. which is a smaller more rigid species, having the flowers in a simple not branched panicle, the segments of the perianth more unequal, broader, and the capsule oval and more acutely angular.

*** *Barren stems wanting. Leaves plane, or grooved above. Inflorescence a terminal head, or on a solitary terminal flower. Seeds appendiculated.*

a. *Stem leafy.*

8. *J. castaneus*, Smith. (Fig. 567.) *Clustered Alpine Rush*. Stem simple, rounded; leaves channeled below, flat above, keeled at the back and sheathed at the base; flowers numerous, in one or two terminal heads, shorter than the leafy bractea; segments of the perianth lanceolate, acute, about half as long as the stamens, and oblong acute capsule.

English Bötany, t. 900.—English Flora, vol. ii. p. 173.—Hooker, British Flora, vol. i. p. 166.—Lindley, Synopsis, p. 275.

Root with short creeping underground stems, and numerous long



567

Juncus castaneus.



568

Juncus biglumis.



569

Juncus triglumis.



570

Juncus trifidus.



571

Juncus acutiflorus.



572

Juncus lampocarpus.

branched fibrous roots. *Stem* erect, solitary, about a foot high, roundish, hollow, quite smooth, of a dark green, leafy at the base, and with one or two upon the stem. *Leaves* green, from three to six inches long, smooth, channeled, and dilated at the base into membranous sheaths, flattish upwards, roundly keeled at the back, the internal cellular substance with distant transverse partitions, the lower leaves subulate, those of the stem thinner and flatter. *Inflorescence* terminal, of one or two compact heads when there are two, one of them is elevated above the other on a smooth somewhat angular branch, shorter than the leafy *bractea*, the heads of *flowers* varying from three to eight sessile, or on short footstalks from the base, a thin membranous scale, lanceolate, acute. *Perianth* of six lanceolate acutely pointed segments, of a smooth shining dark brown colour, the three outer ones rather longer than the others, with a broad obtuse keel, greenish, terminating in the point, the three inner segments thinner, paler, more membranous, more obtuse, and the keel is smaller. *Stamens* on slender *filaments*, about half as long again as the perianth. *Anthers* elliptic, yellow. *Style* erect, breaking off at a joint, the base forming a persistent point to the elliptic oblong acute *capsule*, which is about half as long again as the perianth, of a dark smooth shining brown colour, somewhat triangular, bursting with three *valves*, three *celled*, and many seeded, the *seeds* small, pale brown, each enveloped in a pale thin membranous coat, which is loose and elongated in a saccate manner at each extremity.

Habitat.—Marshy places, especially in a micaceous soil in elevated mountainous districts; rare, mostly in Scotland, on the elevated mountains of the Breadalbane rocks at the head of Glen Callander, in Braemar.—*Dr. Graham*. In the County of Durham.—*Rev. — Hariman*.

Perennial; flowering in July.

b. Stem naked.

9. *J. biglumis*, Linn. (Fig. 568.) *Two-flowered Rush*. *Stem* erect, simple, slender; leaves radical, linear, subulate, compressed, the base dilated into sheaths; heads of two flowers, one elevated on a pedicle, shorter than the foliaceous bractea; segments of the perianth oblong, obtuse, shorter than the obtuse capsule.

English Botany, t. 896.—English Flora, vol. ii. p. 172.—Hooker, British Flora, vol i. p. 168.—Lindley, Synopsis, p. 275.

Root of long slender branched fibres. *Stem* erect, mostly solitary, not tufted, about three inches high, slender, smooth, rounded, more or less deeply striated towards the base, and somewhat compressed, naked above, but the base enveloped in the sheaths of the leaves, which are all radical, erect, smooth, about half as long as the stem, awl-shaped, flattened above, somewhat keeled in the lower part at the back, and slightly channelled above the base, dilated into a thin smooth shining membranous sheath, enveloping the base of the stem, and more or less

striated. *Inflorescence* a terminal head of two flowers, having at the base two ovate-lanceolate concave *bractea*, the outer one longest, mostly overtopping the flowers, the keel at the back lengthened into a point, the sides thin, striated, dilated, shining brown, membranous, and with two or three slender ribs on each side of the keel, one *flower* sessile, the other elevated on a pedicle, and little above the other, *perianth* of six elliptic obtuse nearly equal pieces, smooth and membranous, pale on the margins, and more or less distinctly keeled at the back. *Stamens* on slender *filaments*, longer than the perianth. *Anthers* small, yellow, elliptic. *Style* short, thick, furrowed. *Stigmas* spreading. *Capsule* elliptic, obtuse, longer than the perianth, pointed with the persistent base of the style, three angled, three valved, of a dark shining brown, the margins almost black. *Seeds* numerous, small, ovate, enveloped in a pale thin membranous envelope, elongated at each end.

Habitat.—Boggy places on the highlands of Scotland; not unfrequent on the Breadalbane range, but rare elsewhere.

Perennial; flowering in July and August.

10. *J. triglu'mis*, Linn. (Fig. 569.) *Three-flowered Rush*. Stem erect, simple, slender; leaves radical, linear, subulate, channeled, the base dilated into sheaths, auriculated above; heads mostly of three flowers, as long as the membranous bractea; segments of the perianth oblong, acute, shorter than the elliptic acute capsule.

English Botany, t. 899.—English Flora, vol. ii. p. 173.—Hooker, British Flora, vol. i. p. 168.—Lindley, Synopsis, p. 275.

Roots of numerous long slender branched fibres, bearing tufts of stems and leaves. *Stem* erect, slender, from three to six inches high, round, smooth, striated in the lower part, at least in the dried plant, and enveloped at the base with the sheaths of two or three leaves, but all the others are radical, as are these, but from closely investing the stem appear to arise from it. *Leaves* slender, almost bristle-shaped, erect, about half as long as the stem, quite smooth, channeled above, obtusely pointed, and dilated at the base into thin brown membranous sheaths, auriculated at the top. *Inflorescence* a terminal head, of from one to three flowers, rarely four, all sessile, enveloped in two membranous *bractea*, shorter than the flowers, ovate-acute, concave, the outer one largest, three ribbed, which unite at the top, and are elongated into a short point, the inner one with a slender mid-rib, rarely any lateral ones. *Perianth* of six elliptic lanceolate acute pointed keeled membranous, brown smooth shining pieces, of an equal length. *Stamens* on slender *filaments*, longer than the perianth. *Anthers* yellow, elliptic, twisted. *Style* short, stout, scarcely furrowed. *Stigmas* short, spreading. *Capsule* longer than the perianth, elliptic, acutely pointed, obtusely angular, and indistinctly furrowed, of a deep chestnut brown, three valved, three celled, and many seeded, the seeds enveloped in a pale thin loose membrane, elongated at each extremity.

Habitat.—Boggy places, on the mountains in the North of England, Wales, and especially the highlands of Scotland.

Perennial; flowering in July and August.

The distinction between these two nearly allied species will be at once seen in the difference of the inflorescence, one of the flowers of *J. biglumis* always being elevated above the other. The bractea are also very different, as well as the shape of the segments of the perianth, and especially that of the capsules. *J. triglumis* is always tufted, and is larger and stouter. *J. biglumis* grows scattered, not tufted, and is much more rare.

11. *J. trifidus*, Linn. (Fig. 570.) *Three-leaved Rush*. Stem naked, filiform; heads terminal, about three flowered; bractea three, alternate, long, setaceous, leafy, sheathing and auriculated at the base; perianth of six equal lanceolate acute segments, as long as the elliptical beaked capsule; sheaths at the base of the stem numerous, the upper ones with short leaves.

English Botany, t. 1482.—English Flora, vol. ii. p. 163.—Hooker, British Flora, vol. i. p. 167.—Lindley, Synopsis, p. 274.

Root of numerous long black branched fibres, and with somewhat creeping underground stems, which put out numerous crowded tufts of flowering stems, erect, round, smooth, slender, thread-shaped, from three to six inches high, enveloped at the base in numerous dry brown striated sheaths, imbricated, the lower ones scale-like, the upper ones auriculated, with a tapering point, sometimes becoming leafy, which is mostly very short, rarely as long as the stem, bristle-shaped, channeled, upright, with a tapering point. Bractea three alternate, two at the top of the stem, and one about half an inch below them, long, bristle-shaped, leafy, smooth, channeled on the upper side, tapering at the point, the base dilated into a thin membranous sheath, with rather long pointed auricular appendages at the top. Inflorescence a terminal head of about three flowers, sometimes one or two, sessile, from the base of the upper bractea, or sometimes on a short peduncle, and occasionally there are three heads of flowers, one from the base of each bractea; this is only the case in luxuriant plants. Perianth of six equal elliptic acutely pointed pieces, having a slender keel at the back, and several slender ribs on each side, and from the base of each flower is a membranous scale, about as long as the perianth, with fringed or ciliated margins. Stamens shorter than the perianth, with short filaments, and large erect yellow elliptical anthers. Style long, furrowed, its base forming a beak to the capsule, which is elliptical, cylindrical, not angular or furrowed, with an acute point, crowned by the base of the style.

Habitat.—Damp rocky places in the highland mountains of Scotland.

Perennial; flowering in July and August.

**** Barren stems wanting; leaves rounded, or sub-compressed, and with distinct internal partitions. Inflorescence terminal panicles,

with the flowers aggregated or fasciculated. Seeds not appendiculated.

12. *J. acutiflorus*, Ehrh. (Fig. 571.) Sharp flowered jointed Rush. Stem and leaves slightly compressed; leaves apparently jointed; panicle repeatedly forked, and spreading; segments of the perianth nearly equal, lanceolate, very acute, bristle pointed, rather shorter than the ovate acuminate beaked capsule.

English Botany, t. 2143 (at the bottom of the page).—English Flora, vol. ii. p. 174.—Hooker, British Flora, vol. i. p. 165.—Lindley, Synopsis, p. 275.—*J. sylvaticus*, Reichard. fl. mœno-francof. 2. p. 181. pub. 1778.—Willd. sp. pl.—*J. articulatus*, Linn. var. γ .—English Botany, t. 238.

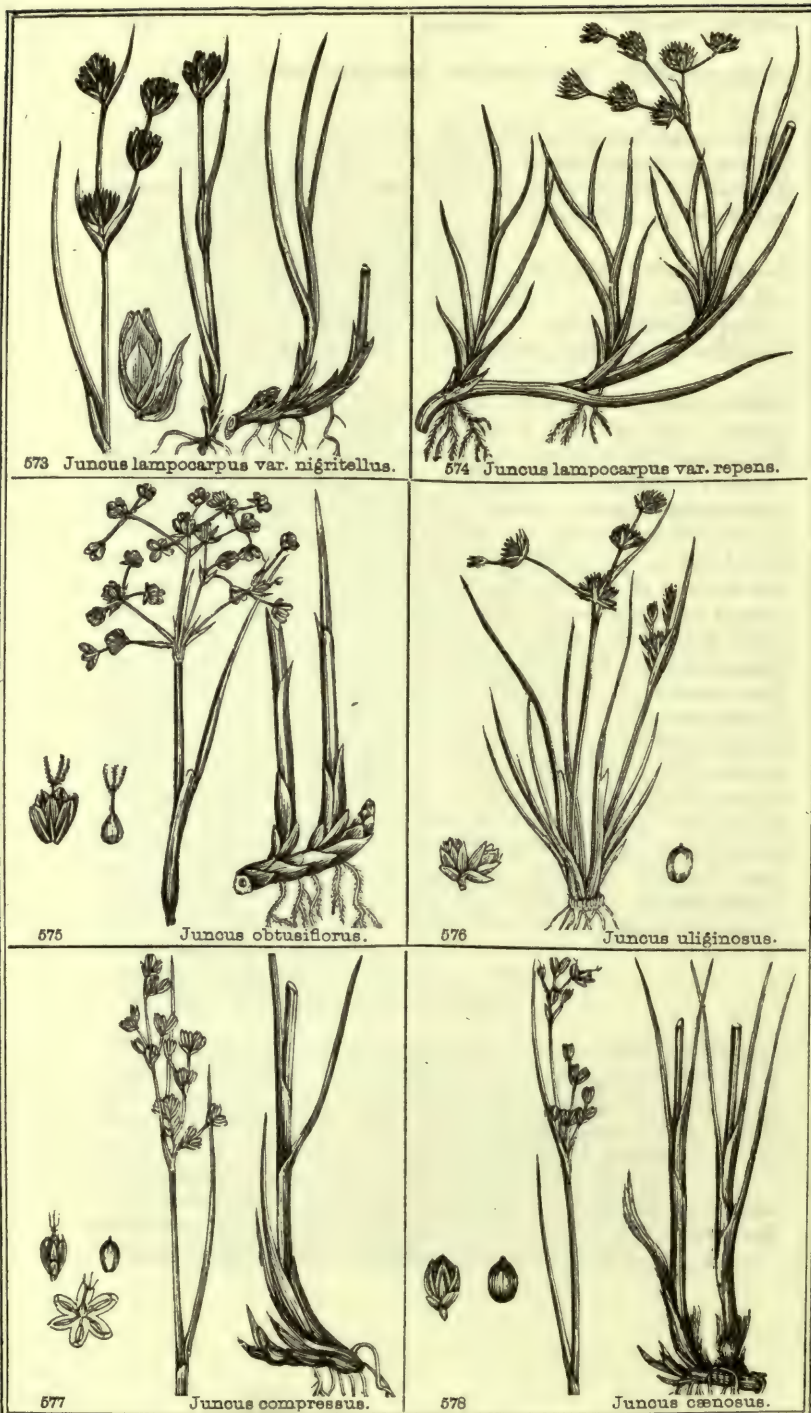
Roots of long tufted branched fibres, with short creeping underground stems. *Stems* erect, from one to two feet high, smooth, slightly compressed, bearing two, three, or sometimes four leaves, and with several lanceolate scales at the base, a dull somewhat glaucous green. *Leaves* alternate, long, tapering upwards, slightly compressed, hollow, with transverse partitions, giving it a jointed or knotted appearance, especially when dried, dilated at the base into a thin sheath, enveloping the stem, having an obtuse pale membranous *ligula* at the top. *Inflorescence* a terminal *panicle*, with repeatedly forked spreading branches, more erect in flower than in fruit, and varying considerably in size, sometimes large and spreading, and not unfrequently small and pyramidal, the branches mostly slender, the extreme ones sometimes reflexed, each division having at its base a thin membranous lanceolate *bractea*, finely striated. *Flowers* in clusters, from three to fifteen in number. *Perianth* of six nearly equal segments, lanceolate, tapering acutely into a bristly point, green and scarcely keeled at the back, the point and side a dark shining brown. *Stamens* not half as long as the perianth, with very short *filaments* and large *anthers*, erect, yellow, elliptical. *Style* short. *Stigmas* spreading. *Capsule* about as long as the perianth, three angled, elliptic-ovate, acutely pointed into a short beak, pale brown colour. *Seeds* numerous, oblong, small, not enveloped in a membrane.

Habitat.—Bogs and marshy places; very common.

Perennial; flowering in July and August.

This species varies considerably in the size of the plant and the character of the panicle. When the heads of flowers are numerous, it is the *J. brevirostris*, Nees. the *J. melananthos*, Reicheub. the *J. acutiflorus*, var. β . *multiflorus*, Weih. and β . *microcephalus*, Koch. When the panicle is spreading in a somewhat umbellate manner, it is the *J. acutiflorus*, var. γ . *pallescens*, Koch. and var. γ . Meyer.

The flowers of this species are frequently abortive, and by its capsules being rarely longer than the perianth, its paler colour and much less highly polished covering distinguishes it from the following, as wel



as by the segments of the perianth being more acute, and always terminated in a bristle-shaped point, mostly of a pale colour.

13. *J. lampo'carpus*, Ehrh. (Fig. 572.) *Shining fruited jointed Rush*. Stem and leaves slightly compressed; leaves apparently jointed; panicle compound, erect or spreading; segments of the perianth equal, bristle-pointed, the three outer ones acute, the three inner obtuse, shorter than three angled oblong lanceolate acute dark glossy capsule.

English Botany, t. 2143.—English Flora, vol. ii. p. 175.—Hooker, British Flora, vol. i. p. 165.—Lindley, Synopsis, p. 275.—*J. articulatus*, Linn. var. α . β .

β . *nigri'tellus*, (Fig. 573) Panicle twice or thrice forked, with a few heads of numerous flowers.—*J. polycephalus*, D. Don.—Hook. Flora Scot. vol. i. p. 110.—English Flora, vol. ii. p. 177.—*J. nigritellus*, D. Don.—English Botany, Suppl. t. 2643.—Koch. Flor. Germ. Helvet. p. 730.

γ . *re'pens*, (Fig. 574.) Stem decumbent and rooting.

δ . *fluit'ans*. Stem elongating, floating, and rooting; var. β . *fluitans*, Koch.

Roots of long branched simple or downy fibres, and creeping underground stems. *Stems* erect, or decumbent, as in γ , putting out roots from the joints, and becoming erect, or elongated, and floating upon the surface of water, and putting out roots from the joints, as in δ , somewhat compressed, quite smooth, and leafy. *Leaves* slightly compressed, rather short, tapering, slender, and not unfrequently long and stout, smooth, hollow, with transverse partitions, giving it a jointed or knotted appearance, dilated at the base into rather long thin sheaths, with a membranous margin and short obtuse *ligula*, the *panicle* terminal, compound, mostly forked and spreading; in β . *nigritellus* it is less branched, and with a few heads of numerous crowded flowers, but commonly there are numerous heads of about six flowers, each division of the panicle having a lanceolate bractea at the base, as well as each of the sessile flowers. *Perianth* of six equal oblong lanceolate pieces, each terminated with a small bristly point, the three outer ones with a broad green obtuse keel, the three inner with three ribs, and obtuse near the point, with a pale thin membranous margin. *Stamens* about half as long as the perianth. *Filaments* slender, and the *anthers* elliptical, yellow, erect. *Style* short. *Stigmas* long, spreading. *Capsule* about one-third longer than the perianth, large, acutely triangular, oblong, lanceolate, with an acute point, of a dark purplish brown colour, highly polished, opening with three *valves* three celled, and bearing numerous small ovate *seeds*.

Habitat.—Watery meadows and boggy places; frequent.

Perennial; flowering in July and August.

This is an extremely variable species, seemingly affected by the

situation of its growth; for when it has grown in a moderately dry sandy soil its stems are perfectly erect, and vary from one to two feet high; but in a more luxuriant situation, we have seen it nearly three feet high: sometimes it has numerous leaves both about its roots and stem, and not unfrequently it is without root leaves, and but few on the stems. If it has grown in marshy places, the stems are often decumbent and rooting; and if the ground becomes overflowed with water, the stems become floating, and put out roots and flowering stems at various intervals; and the *J. nigriflorus*, of D. Don, we think only a variety caused by its place of growth: its perianths and capsules are paler and narrower, and seem, as Sir W. J. Hooker observes, to unite *J. lampocarpus* with *J. acutiflorus*.

14. *J. obtusiflorus*, Ehrh. (Fig. 575.) *Blunt flowered jointed Rush*. Stem and leaves round; leaves apparently jointed; panicle very compound, its branches divaricated and reflexed; perianth of six equal obtuse segments, as long as the ovate obtuse three angled capsule.

English Botany, t. 2144.—English Flora, vol. ii. p. 176.—Hooker, British Flora, vol. i. p. 166.—Lindley, Synopsis, p. 276.—*J. bifolius*, Hopp. tascheub.—*J. reflexus*, Rafn. dau.

Root of stout branched downy fibres, and creeping underground stems. *Stems* erect, round, smooth, rather stout, with internal partitions, from one to three feet high, bearing two or three leaves, which are erect, round, stout, tapering upwards into a pungent point, alternate, dilated at the base into thin sheaths, with a membranous margin obtusely ligular at the top, hollow, with numerous transverse partitions, which are very distinct in a dry state; at the base of the stem is one, seldom more leaves, and several dried sheaths of various lengths, obtuse, with a lanceolate or bristle point, and more or less deeply striated. *Panicle* terminal, rather large, with numerous round branches, repeatedly divided from different points, and spreading, the ultimate branches reflexed; heads of flowers numerous, of from two to five sessile crowded flowers, each having a pale bractea at its base. *Perianth* of six oblong obtuse pieces, with an obtuse keel and brown membranous margins. *Stamens* rather shorter than the perianth. *Style* rather long, with spreading stigmas, and the capsule ovate, obtuse, three angled, terminating in a point, about as long as the perianth, of a pale shining brown colour.

Habitat.—Bog and wet marshy places; much less common than the two last species.

Perennial; flowering in August.

15. *J. uliginosus*, Sibth. (Fig. 576.) *Lesser jointed Bog Rush*. Stem often swollen at the base, erect, decumbent, or creeping and rooting; leaves bristle-shaped, grooved above; panicle nearly simple, irregular, with remote heads, of nearly sessile, few, or many flowers; perianth of six oblong acute pieces, rather shorter than the elliptic obtuse capsule.

English Botany, t. 801.—English Flora, vol. ii. p. 169.—Hooker, British Flora, vol. i. p. 166.—Lindley, Synopsis, p. 275.—*J. bulbosus*, Linn. Sp. pl. ed. 1. p. 327.

β. repens. Stem decumbent at the base, and rooting.—*J. supinus*, Mönch.

γ. fluitans. Stem trailing, or floating and rooting.—*J. subverticillatus*, Wulfen.—English Flora, vol. ii. p. 170.—Lindley, Synopsis, p. 275.—Host. Gram. Aust. vol. iii. t. 88.—*J. setifolius*, Ehrh. Calam. 86.

Root of long slender branched fibres. *Stem* very various, mostly bulbous at the base, in dried situations frequently not more than an inch high, and bearing a single cluster of a few small flowers; it is not unfrequent in damp places from four to six inches high, slender, erect, simple, bearing one, two, or three leaves, and as often it is found decumbent at the base, and rooting from the joints of the leaves, it is then the *β. repens*; and if the ground where this has grown becomes overflowed with water, or that the plant has grown in a marshy place, it becomes long and trailing, or floats on the surface of the water, putting out roots and flowering stems from the joints, and frequently several leaves, it is then the *γ. fluitans*. *Leaves* slender, bristle-shaped, mostly as long as the stem, somewhat compressed and channeled above, the base dilated into a sheath, with pale thin membranous margins, protruded above into oblong auricles on each side, the outer sheaths mostly of a purplish red colour, hollow within, and with transverse partitions. *Panicle* various, sometimes only of one or two clusters, of from two to six flowers, but mostly a branched panicle, with distant heads, on slender spreading or reflexed branches, two or three times divided, the *flowers* sessile, or nearly so, each having at the base an ovate-lanceolate membranous pale brown bractea. *Perianth* of six nearly equal oblong acute pieces, terminating in a short bristly point, the three inner ones obtuse, from a pale thin membranous margin, each three ribbed, green, with dark brown sides. *Stamens* about half as long as the perianth, with short *filaments* and yellow *anthers*, the *style* short, with spreading *stigmas*. *Capsule* elliptic, triangular, obtuse, with a short thick point, three celled, three valved, and many seeded, of a palish brown colour.

Habitat.—Wet marshy or boggy situations; common.

Perennial; flowering in August.

This is one of the most difficult species of any of our genus to determine, varying so greatly in its appearance according to the situation of its growth. The most constant characters are to be sought for in the perianth, and more especially in the obtuse capsule, which readily distinguishes this from *J. lampocarpus*, the small varieties to which, in the general appearance and growth of the plant, it greatly assimilates. The flowers sometimes become viviparous, which gives a remarkable appearance to the plant; but in no other respect is it different from the more general character.

**** *Barren stems wanting; leaves channelled above, without distinct internal partitions. Inflorescence terminal, corymbose panicles, or solitary remote flowers. Seeds not appendiculated.*

a. Stems leafy.

16. *J. compressus*, Jacq. (Fig. 577.) *Round fruited Rush.* Stem erect, compressed, leafy to the middle; leaves linear, compressed, channelled; panicle terminal, compound, sub-corymbose; perianth of six equal ovate oblong incurved pieces, rather shorter than the roundish ovate capsule.

English Flora, vol. ii. p. 165.—Hooker, British Flora, vol. i. p. 167.—Bicheno in Tr. of Linn. Soc. vol. xii. p. 207.—Lindley, Synopsis, p. 274.—*J. bulbosus*, Linn.—English Botany, t. 934.

Root of numerous stout branched fibres, and stout creeping underground stems. *Stems* erect, from six to twelve inches high, smooth, compressed, leafy at the base, and with a solitary leaf about the middle. *Leaves* linear, bristle-shaped, striated, and channelled above from the incurved margins, rounded at the back, somewhat compressed, smooth, and dilated at the base into a thin sheath, with membranous margins, scarcely auriculated above, those of the stem striated, but the radical ones smooth. *Panicle* terminal, compound, sub-corymbose, erect, of several roundish smooth branches, the first stouter and longer than the others, nearly as long as the leafy slender *bractea*, which is channelled, dilated, striated, and sheathing at the base. *Perianth* of six ovate oblong pieces, nearly equal, concave, with a broad green three ribbed keel, and dark brown shining margin, the three outer ones with the points incurved, the three inner flatter, more obtuse at the point, and paler, with a dilated thin membranous margin. *Stamens* nearly as long as the perianth, with slender *filaments* and yellow oblong *anthers*, twisted. *Style* as long as the stamens. *Stigmas* spreading. *Capsule* roundish, ovate, obscurely triangular, with an obtuse point, terminating by the short base of the style, three celled, three valved, and many seeded, of a pale brown colour, rather shorter than the perianth.

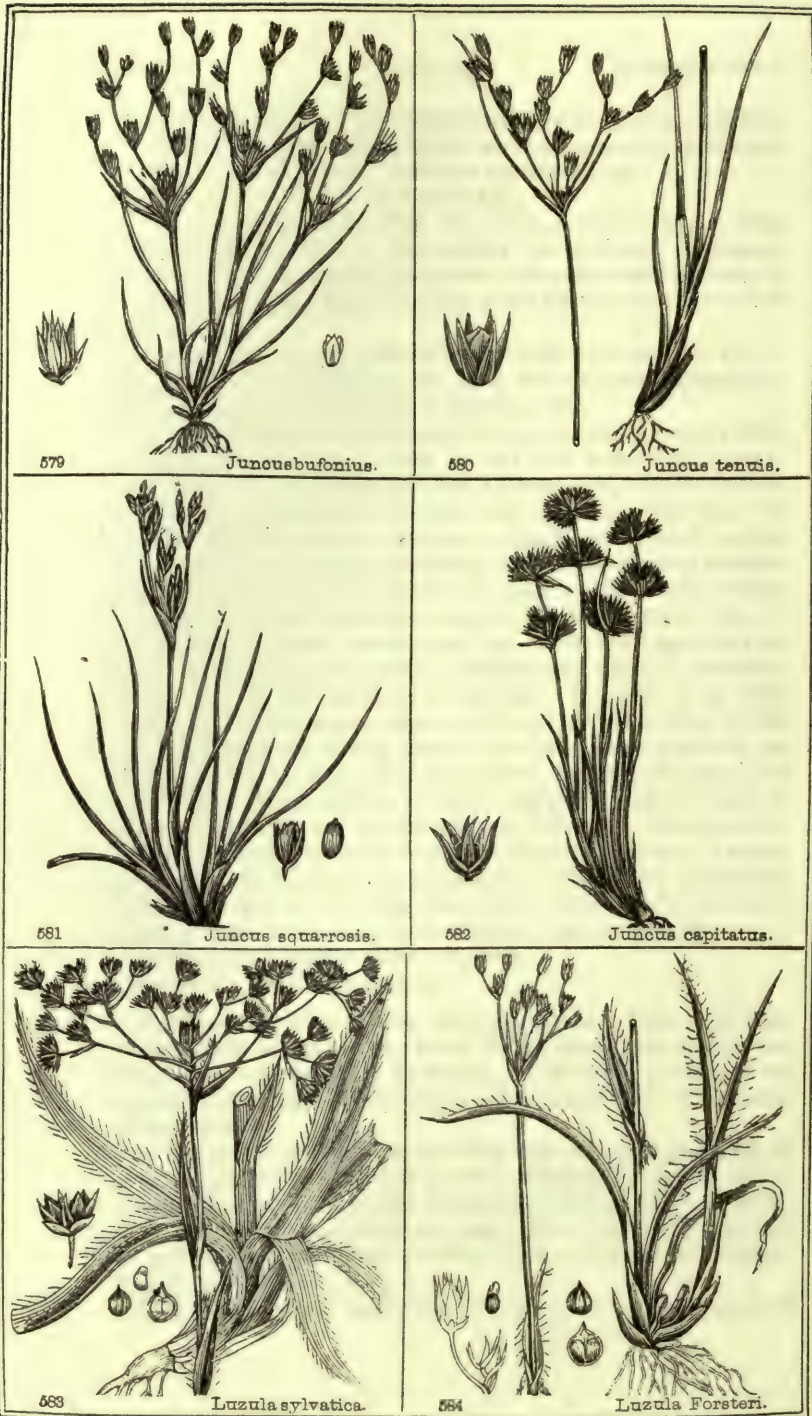
Habitat.—Wet marshy places; frequent.

Perennial; flowering in August.

17. *J. cæno'sus*, Bicheno. (Fig. 578.) *Mud Rush.* Stem erect, compressed, leafy to the middle; leaves linear, channelled; panicle terminal, cymose longer than the bractea, few flowered; perianth of six equal oblong obtuse incurved pieces, rather longer than the roundish oblong capsule.

Bicheno in Tr. of Linn. Soc. vol. xii. p. 309.—English Flora, vol. ii. p. 166.—English Botany, Suppl. t. 2680.—Lindley, Synopsis, p. 274.—*J. compressus*, var. β . in Hooker Flora, Scot. vol. i. p. 107, and British Flora, vol. i. p. 167.—*J. Gerardi*, Lois. notic. p. 60, and Fl. Gall. ed. 2. p. 260.—Koch. Fl. Germ. et Helv. p. 731.—*J. bothnicus*, Wahlenberg Fl. Lapp. p. 82. t. 6.

This species, though nearly allied to the above, is always found in



salt marshes not far from the sea, while *J. compressus* is found in inland, and not only saline marshes. The whole plant is taller and much more slender. The *stem* compressed, erect, smooth, bearing a solitary leaf frequently above the middle. *Leaves* erect, mostly numerous from the base of the stem, long, slender, bristle-shaped from the sides being rolled inwards, or flat, and channeled above, smooth, striated, especially below, and is dilated into a thin sheathing base, with pale membranous margins, elongated at the top into a short obtuse *ligula*, the sheaths long, smooth, striated, closely enveloping the base of the stem. *Panicle* small, sub-corymbose, the branches erect, roundish, smooth, two or three, one longer than the others, and reaching beyond the slender leafy *bractea* which is flat, channelled with a short striated sheath. *Flowers* few, distant, mostly solitary. *Perianth* of six equal oblong obtuse pieces, narrower than in *J. compressus*, the outer ones with a longer incurved point, of a darker colour, and with a narrower green keel. *Stamens* scarcely the length of the perianth, with short *filaments*, and yellow oblong twisted *anthers*. *Style* as long as the stamens, with spreading *stigmas*, the *capsule* is longer, obtuse, but distinctly triangular, pointed by the base of the style, and as long, sometimes longer, than the perianth, and of a darker colour than *J. compressus*.

Habitat.—Saline marshes; frequent.

Perennial; flowering in August.

How far we are correct in following Bicheno, Smith, and others, in making this a species rather than a variety, according to Hooker and Greville, we must leave to further investigation. We have endeavoured to point out the distinction between the two as far as our researches have been made, and think it is equally as distinct a species as some others that are made so.

18. *J. bufo'nius*, Linn. (Fig. 579.) *Toad Rush*. Stem simple, or branched, leafy; leaves linear, bristle-shaped, channeled above, erect; panicle forked, with solitary nearly sessile unilateral distant flowers, longer than the bractea; perianth of six lanceolate long taper pointed equal pieces, longer than the elliptic oblong obtuse capsule.

English Botany, t. 802.—English Flora, vol. ii. p. 168.—Hooker, British Flora, vol. i. p. 168.—Lindley, Synopsis, p. 274.

Root of very numerous long branched fibres. *Stems* numerous, tufted, crowded, erect or spreading, slender, simple, or more generally branched and leafy, round, or somewhat angular. *Panicle* terminal, of two or several branches of unequal lengths, longer than the bractea, more or less forked with a solitary flower in the axis of the divarication. *Bractea* leafy, sheathing at the base with narrow pale membranous margins. *Leaves* numerous at the base, and mostly one, two, or three upon the stem, linear, bristle shaped, flat above, channeled at the base, and dilated into a thin sheathing base, with white thin membranous margins, somewhat auriculated at the top, but not forming a *ligula*,

the sheaths smooth, or finely striated, green, or sometimes pinkish. *Flowers* distant, arranged on one side of the branches of the panicle, nearly sessile from the base, of one or two ovate-lanceolate pale membranous bractea. *Perianth* of six nearly equal lanceolate segments, with long taper points, formed by the elongation of the green two ribbed keel, the outer ones broader and longer than the inner, the margins thin, white, membranous. *Stamens* half as long as the perianth, the *filaments* very short. *Capsule* elliptic, oblong, obtuse, somewhat angular, three *valved*, three *celled*, many *seeded*, shorter than the perianth.

Habitat.—Moist or marshy places; frequent.

Annual; flowering in July and August.

This is an extremely variable plant as to size and luxuriance; we have frequently seen it in places that have become dried up not more than an inch long, with a simple raceme of two or three flowers, but mostly it is from four to six inches high, with a much elongated panicle. The whole plant is of a pale green, except sometimes the base and lower sheaths of the leaves are of a pink colour. The segments of the perianth are also very various in the length of the point; we have specimens from the banks of the mountain streams in Scotland with the point much attenuate, and the whole segments longer than is usual, and in specimens from a rather dry situation they are short, scarcely longer than the capsule, with the three inner ones membranous above.

b. Stems naked.

19. *J. tenuis*, Willd. (Fig. 580.) *Slender spreading Rush*. Stem simple, naked above, leafy at the base; leaves linear, erect, channeled; panicle forked, with solitary sub-racemose flowers, shorter than the leafy bractea; perianth of six three ribbed lanceolate taper pointed pieces, longer than the ovate capsule.

Hooker, British Flora, vol. i. p. 167.—*J. gracilis*.—English Botany, t. 2174.—*J. Gesneri*.—English Flora, vol. ii. p. 167.—Lindley, Synopsis, p. 274.

Root of branched woolly fibres. *Stem* slender, erect, about a foot high, rounded and leafy below, naked, and somewhat triangular above. *Leaves* few, arising from the root, erect, shorter than the stem, linear, bristle-shaped, channeled, and somewhat striated, dilated at the base into a thin striated sheath, with thin membranous margins, elongated above into an obtuse *ligula*. *Panicle* terminal, forked, of two, three, or four spreading branches, of unequal lengths, in the axis of the forks are two or three nearly sessile flowers, and two or three solitary ones on one side of the branches. *Bracteas* longer than the panicle, leafy, linear, channeled, one much longer than the other two. *Perianth* of six equal lanceolate taper pointed pieces, with a three ribbed green keel terminating in the point, the margins white, thin, membranous. *Stamens* with the *filaments* shorter than the *anthers*, and the

capsule ovate, or nearly spherical, shorter than the perianth, crowned by the base of the style, of a pale brown colour, three *valved*, three *celled*, and with numerous pale brown *seeds*.

Habitat.—Moist ground, among the Clove mountains, Scotland.—*Mr. G. Don*. Very rare.

Perennial; flowering in July.

This, though a very rare plant with us, is common in North America, and not unfrequent in many parts of Europe. It is nearly allied to the above *J. bufonis*, but is readily distinguished by its capsule.

20. *J. squarrosus*, Linn. (Fig. 581.) *Heath Rush*. Stem naked, obtusely angular; leaves rigid, bristle-shaped, channeled; panicle terminal, compound, cymose; perianth of six ovate-lanceolate acute or obtuse pieces, equal to the obovate obtuse capsule.

English Botany, t. 933.—English Flora, vol. ii. p. 164.—Hooker, British Flora, vol. i. p. 168.—Lindley, Synopsis, p. 274.

Root of several stout branched fibres. *Stems* erect, solitary, from six to twelve inches high, smooth, obtusely angular, arising from amidst a tuft of a considerable number of *leaves*, which are erect and spreading, rigid, wiry, bristle-shaped, from three to four inches long, channeled, and dilated into a thin sheathing base, which is slightly striated. *Panicle* terminal, compound, cymose, of about four principal branches, one usually longer than the others, roundish, smooth, longer than the *bractea*, the outer one of which is the largest, a membranous sheath, with the keel terminating in a leafy point as long as the sheath. *Perianth* of six ovate-lanceolate equal pieces, with an acute or sometimes obtuse point, a dark shining brown colour, with an obscurely ribbed obtuse keel, and a pale thin membranous margin. *Stamens* about half as long as the perianth, with very short *filaments*, and yellow twisted linear *anthers*. *Style* reaching to near the top of the perianth, with spreading linear *stigmas*. *Capsule* about the length of the perianth, obovate, obtuse, with a short obtuse acute point, three angled, three valved, three celled, many seeded, of a pale shining brown colour.

Habitat.—Boggy places or dry heathy ground.

Perennial; flowering in June and July.

This is a remarkably hard rigid plant, readily distinguished from all others of our species. It does not seem to be eaten by cattle, except by sheep in the early part of Spring, when the leaves are tender, and there is a scarcity of other herbage.

21. *J. capitatus*, Weigel. (Fig. 582.) *Dense-headed Rush*. "Stem erect, unbranched, leafy at the base; leaves bristle-shaped, channeled; heads one or two lateral and terminal; stamens three; perianth of six keeled bristle pointed pieces, twice as long as the capsule."

English Botany, Suppl. t. 2644.—English Flora, vol. ii. p. 170.—Hooker, British Flora, vol. i. p. 168.—Lindley, Synopsis, p. 275.

Herb either solitary or numerous and densely crowded. *Root*

fibrous, apparently annual, quite smooth, simple, neither bulbous nor creeping, fibres smooth. *Stems* one or more from the crown of each root, from one and half to four inches high, simple, straight, upright, smooth, angular, striated, leafy at the very bottom only, and bearing at the top a terminal head of *flowers*, sometimes accompanied by another near an inch below it. In one very luxuriant specimen only we have seen the stem divided at the lower head, and bearing two others above it. *Leaves* several radical, sheathing, erect, one-third the height of the stem, very slender, acute, convex beneath, channeled above, and when dry involute, quite smooth, sheathing at the base, with membranous edges. *Bracteas* one or two under each head, like the leaves, but much shorter, dilated and convex at the base. *Interior bracteas* from three to five under each head, spreading, lanceolate, acute, membranous, keeled, shorter than the perianth. *Flowers* from two to five, sometimes ten, or more in each head, crowded, spreading every way. *Calyx leaves* (perianth) ovate-lanceolate, concave, strongly keeled, membranous, light brown, without ribs, the keel green, firm, ending in a long acute bristly point, three inner ones smallest, and most delicate. *Filaments* three only, very short, opposite to the outer leaves of the perianth. *Anthers* oblong, erect, spiral after flowering. *Stigmas* three. *Capsules* about the length of the stamens, not half as long as the calyx, roundish, triangular, membranous, obtuse. *Seeds* numerous, oblong, striated, very minute.

Habitat.—"Found by Mr. Hudson below the village of Bovet, between Fort George and Fernain Bay, in the Isle of Jersey."

Annual; flowering in May.

The synonyms of this plant are very much confused; we have, therefore, for the present omitted the reference to any. The plant is an extremely rare one, and perhaps is now extinct as a native. We have not seen any native specimens, nor does it appear to have been found since Hudson's time. The description we have given is from Smith's English Flora, and our drawing is from specimens collected in Italy, which are not in any way different from the above description.

GENUS XXI. LUZULA.—DE CAND. *Wood Rush*.

Nat. Ord. JUN'CEÆ. DE CAND.

GEN. CHAR. *Perianth* of six pieces, glumaceous. *Stamens* six (rarely three). *Capsule* of one cell, three valved, valves without dissepiments, three seeded.—In reference to the name Smith says, "The hairy heads of flowers wet with dew, and sparkling by moonlight, gave the elegant Italians an idea of their *lucciole*, or glow worms, sometimes written *luzziole*; but this is a provincial corruption. Hence, however, John Bauhin got the name of

Gramen luzulæ, or Glow-worm grass; for he never called it *Luzula*, which would have been the same as actually calling it a Glow-worm."—Eng. Fl. vol. ii. p. 178.

* *Seeds not appendiculated, or slightly so at the apex.*

1. *L. sylvatica*, Bicheno. (Fig. 583.) *Great Hairy Wood Rush*. Panicle sub-cymose, doubly compound; peduncles elongated, of about three flowers; perianth of six bristle pointed segments, as long as the capsule; filaments very short; leaves linear, lanceolate, with hairy margins.

English Flora, vol. ii. p. 180.—Hooker, British Flora, vol. i. p. 169.—Lindley, Synopsis, p. 276.—*Juncus sylvaticus*, Hudson.—English Botany, t. 737.—*Luzula maxima*, Willd.—De Cand. Fl. Fr.—*Juncus maximus*, Ehr.—*J. Latifolius*, Wulf. in Jacq. Collec.—*J. pilosus*, var. δ . Linn.

Root of long slender branched fibres, with somewhat woody creeping underground stems. *Stems* erect, from one to two feet high, striated and leafy, slender. *Leaves* from the root numerous, linear, lanceolate, smooth and shining, striated, paler beneath, with the margins fringed with white slender soft hairs, leaves of the stem short, with long sheaths enveloping the stem. *Panicle* terminal, sub-cymose, very compound, with slender smooth spreading branches, much longer than the leafy *bracteas*, those at the base of the subdivisions and flowers lanceolate, pale, smooth, membranous, with ciliated margins. *Peduncles* very slender, mostly bearing a cluster of three flowers. *Perianth* of six nearly equal segments, lanceolate, keeled, the keel terminating in a bristly point, the outer segments of a chestnut brown, the inner paler, more acute, and rather longer than the outer. *Stamens* shorter than the perianth, with very short *filaments* and linear yellow *anthers*, becoming twisted after bursting. *Style* long, with three slender spreading *stigmas*. *Capsule* ovate, acute, crowned by the persistent base of the style, three angled, three valved, and three seeded, the *seeds* ovate oblong, obtusely triangular, the inner side marked by a narrow longitudinal rib, the base attached to the receptacle by a slender spiral thread, and the base with a pale obscure appendage.

Habitat.—Woods and shady places in hilly and mountainous districts; frequent.

Perennial; flowering in May.

The leaves vary a good deal in width and the hairiness of its margins, but otherwise it is constant in its character. The plants form large tufts, and are firmly rooted, but its slippery pliant leaves render it an unsafe footing, though a secure handhold to the rambler in assisting him to climb the steep activity, or rocky sides of mountains. It does not appear to be a favourite food with any cattle; but its dried leaves are useful for many purposes of packing, &c. where a softer and more pliant material than common straw is required.

** *Seeds with a large crested appendage at the apex.*

2. *L. Forsteri*, De Cand. (Fig. 584.) *Narrow-leaved Hairy Wood Rush*. Panicle sub-cymose, but little branched; peduncles erect, single flowered; perianth of six narrow acuminate segments, rather longer than the acute capsule; seeds with a large oblong obtuse crested appendage.

Juncus Forsteri.—English Flora, vol. ii. p. 179.—Hooker, British Flora, vol. i. p. 169.—Lindley, Synopsis, p. 276.—English Botany, t. 1293.

Root of numerous branched fibres, and creeping underground stems. *Stems* erect, from twelve to eighteen inches high, round, smooth, slender, leafy. *Leaves* from the root numerous, linear, of a bright shining green, numerous striated, paler and duller beneath, the margins especially in the lower part fringed with long soft hairs, those of the stem much shorter, with a sheathing base. *Panicle* terminal, small, of a few erect nearly simple branches, longer than the leafy bracteas, the peduncles short, erect, single flowered, each having at its base two lanceolate bracteas, with pale membranous margins. *Perianth* of six narrow lanceolate acuminate pointed pieces, keeled and striated at the back, of a shining brown colour, with pale membranous margins, the inner ones rather shorter than the outer, and rather longer than the acute capsule, which is crowned by the persistent base of the style, three seeded, three valved, the seeds roundish, oblong, somewhat angled, having at the apex a large oblong obtuse straight appendage, of a pale colour.

Habitat.—Groves and thickets, especially in a gravelly or calcareous soil; more common in Surrey than the *L. pilosa*.—Mr. J. S. Mill. About Forfar and banks of the Doune, Ayrshire—Mr. J. Wilson.

Perennial; flowering in May and June.

3. *L. pilosa*, Willd. (Fig. 585.) *Broad-leaved Hairy Wood Rush*. Panicle sub-cymose, but little branched; peduncles single flowered, reflexed; perianth of six acuminate pieces, rather shorter than the obtuse capsule; seeds with a large hooked appendage at the apex.

English Flora, vol. ii. p. 178.—Hooker, British Flora, vol. i. p. 169.—Lindley, Synopsis, p. 276.—*Juncus pilosus*, Linn.—English Botany, t. 736—*J. vernalis*, Ehren.

Root of numerous long slender branched fibres, with creeping underground stems. *Stems* tufted several from the same root, erect, smooth, simple, leafy, slender, from six to twelve inches high. *Leaves* numerous, linear, lanceolate, smooth, striated, a shining green, paler on the under side, the margins especially below fringed with soft white silky hairs, those of the stem short, with a sheathing base enveloping the stem. *Panicle* terminal, small, of a few slender longish branches, simple or divided towards the end into two or three spreading peduncles, each bearing a solitary flower; these before flowering are erect, but afterwards become reflexed. *Bracteas* short and leafy, those at



585

Luzula pilosa.



586

Luzula campestris.



587

Luzula multiflora.



588

Luzula multiflora var. *congesta.*



589

Luzula spicata



590

Luzula arcuata.

the division of the branches and at the base of the flowers small, lanceolate, membranous, brown, with pale white edges. *Perianth* of six equal lanceolate acuminate pieces, keeled and striated at the back, the keel terminating in a short fine point, a dark chestnut brown, with pale thin membranous margins. *Stamens* about half as long as the perianth, with very short *filaments* and linear *anthers*, becoming twisted after flowering. *Style* about as long as the perianth, with three spreading *stigmas*. *Capsule* rather longer than the perianth, ovate, obtuse, pointed with the persistent base of the style, three angled, three seeded. *Seeds* roundish, ovate, marked with a line on the inner side, and having at the apex a large pale hooked appendage.

Habitat.—Woods and shady places; frequent.

Perennial; flowering in April and May.

This species is readily distinguished from *L. Forsteri*, by its reflexed peduncles and hooked appendage to the seeds; its leaves are larger and longer, but much smaller than those of *L. sylvatica*, with which it is often found growing, but from that it is readily distinguished.

*** *Seeds with a conical appendage at the base.*

4. *L. campestris*, Willd. (Fig. 586.) *Field Wood Rush*. Panicle of three or four ovate dense sessile and pedunculated clusters; perianth of six equal acuminate bristle pointed segments, longer than the obtuse pointed capsule; stamens with large linear anthers and very short filaments.

English Flora, vol. ii. p. 181.—Hooker, British Flora, vol. i. p. 170.—Lindley, Synopsis, p. 276.—*Juncus Campestris*, Linn.—English Botany, t. 672.

Root of numerous long branched fibres, and short creeping underground stems. *Stems* tufted, slender, erect, from four to ten inches high, smooth and leafy, simple. *Leaves* numerous, narrow, linear, spreading, flat, smooth, paler beneath, and finely striated, the margins ciliated with long slender soft white hairs, the leaves of the stem shorter than the others, and sheathed at the base round the stem. *Panicle* terminal, of about four ovate dense spikes of flowers, sessile, or more generally one is sessile, and the others elevated on peduncles, mostly of irregular lengths, and seldom longer than the flat leafy bractea, from the base of which they arise. *Flowers* densely crowded, sessile in the bosom of a membranous ovate acute ciliated bractea. *Perianth* of six equal lanceolate acuminate pieces, of a chestnut brown colour, keeled and striated at the back, the keel terminating in a bristly point, the three inner segments more obtuse at the point from the more dilated margin, which is frequently cleft, with the keel terminating between the cleft in a short bristly point. *Stamens* with very short *filaments*, not more than one-sixth as long as the linear large yellow *anther*, which is nearly as long as the perianth. *Style* nearly as long as the stamens, with three slender long protruding *stigmas*. *Capsule* roundish, obovate, obtuse, crowned by the persistent

base of the style, much shorter than the perianth. *Seeds* small, with a line on one side, and the base with a conical appendage.

Habitat.—Dry pastures and heathy places; frequent.

Perennial; flowering in April and May.

5. *L. multiflora*, Lejam. (*fl. de spa.* 1. p. 169.) (Fig. 587.) *Many flowered Wood Rush*. Panicle of numerous ovate sessile and pedunculated clusters; perianth of six equal narrow very acuminate bristle pointed segments, longer than the roundish obtuse pointed capsule; stamens with short linear anthers, as long as the filaments.

Koch *Fl. Germ. Helv.* p. 734.—*L. erecta*, Desv. *Journ.*—*L. campestris*, var. β . De Cand. *Fl.* 2. p. 601.—*Juncus multiflorus*, Ehrh. *calm. n.* 127.—*Luzula congesta*.—English *Flora*, vol. ii. p. 181.—English *Botany*, Supp. t. 2719 (the middle figure).—Lindley, *Synopsis*, p. 276.—*Juncus liniger*.—Purton's *Midland Fl. Supp.* p. 352. t. 9.

β . *congesta*. (Fig. 588.) Panicle contracted into a rounded lobed head.—*Luzula congesta*, Lej. *spa.* 168.—English *Botany*, Suppl. t. 2719 (right hand figure).—*Luzula campestris*, var. β .—Hooker, *British Flora*, vol. i. p. 170, var. γ . Meyer *monogr.* p. 18, var. ϵ . De Cand. *fl.* 2. p. 602.

γ . *nigricans*. Panicle contracted into a lobed head, of a brownish black colour, the leaves only hairy at the base, frequently altogether smooth.—*Luzula nigricans*, Deso. *journ.* i. p. 158.—*L. campestris*, var. δ . *alpina*, Meyer *monogr.* p. 18, var. δ . *nigricans*, De Cand. *fl.* 2. p. 602.—*L. nigricans*, De Cand. *fl. fr. suppl.* p. 306.—*Juncus sudeticus*, Will. *spec.* 2. p. 221.

Root of numerous long slender branched fibres, and creeping underground stems, tufted. *Stems* erect, round, smooth, striated, from one and half to two feet high, slender, leafy. *Leaves* numerous from the root, tufted, linear, long, flaccid, striated and paler on the under side, the upper scattered over more or less with long slender silky hairs, but especially the margins and towards the lower part of the leaf, the leaves of the stem shorter, forming a sheath around the stem, which has frequently at the top a large tuft of hairs. *Panicle* terminal, of from six to ten dense roundish ovate spikes of flowers, several of which or all are sessile, or nearly so, and the others on *peduncles* of variable lengths, from half an inch to an inch long, usually longer than the flat leafy *bractea*, from the base of which they arise, and at the base of each of the flowers is a lanceolate pale membranous ciliated bractea. *Flowers* densely crowded, of six equal narrow lanceolate pieces, with long tapering points, thin, membranous, pale brown, with a keel terminating in the bristly point, the three inner pieces usually more obtuse at the point, and less tapering from the more dilated margins. *Stamens* about half as long as the perianth, with small linear yellow *anthers*, becoming twisted after flowering, and not more than as long again as the *filament*. *Capsule* a little shorter than the perianth, obovate, obtuse, crowned with a blunt point the persistent base of the style, three

angled, three seeded, the *seeds* roundish, oblong, flattened on one side, and marked with a longitudinal line, acutely pointed at the apex, and lengthened at the base into a pale conical shaped appendage.

Habitat.—Moorish and turfy places; not uncommon.

Perennial; flowering in June.

This species and its varieties are nearly allied to the previous one *J. campestris*; it differs, however, in the narrower more taper-pointed segments of the perianth, the more ovate angled obtuse capsule being also only slightly shorter than the perianth, and the very different size and character of the stamens afford characters sufficient to distinguish them as separate species. It differs very considerably in the form and appearance of the inflorescence, from the rounded densely crowded head to the almost umbellated panicle, but it is constant in the character of its flowers and fruit.

6. *L. spicata*, De Cand. (Fig. 589.) *Spiked Mountain Wood Rush*. Spike terminal, oblong, lobed, drooping; perianth of six equal acuminate bristle pointed segments, longer than the roundish ovate mucronate capsule; leaves channeled at the base, hairy.

Hooker, British Flora, vol. i. p. 170.—English Flora, vol. ii. p. 182.—Lindley, Synopsis, p. 277.—*Juncus spicatus*, Linn.—English Botany, t. 1176.

Root of numerous long slender branched fibres, bearing a solitary stem, from three to six inches high, sometimes more, erect, round, smooth, somewhat striated, slender, leafy. *Leaves* around the base of the stem, numerous, short, linear, narrow, soft and spreading, somewhat channeled and striated at the base, and on the margins are scattered a few soft white silky hairs, the stem leaves shorter, more channeled, and the base envelopes the stem in rather long sheaths. *Spike* terminal, drooping, from half an inch to an inch long or more, of numerous crowded lobed flowers, sessile in the bosom of one or two ovate tapering bristle pointed membranous *bractea*, brown, with a more or less ciliated margin. *Perianth* of six equal dark brown narrow tapering pieces, the keel terminating in a rather long bristly point. *Stamens* about half as long as the perianth, with yellow *anthers*, twisting after flowering. *Capsule* roundish, ovate, obtusely angular, acute at the point, and crowned with the base of the style, three valved, with the margins somewhat thickened, of a dark shining brown colour. *Seeds* small, pale, somewhat angular, with a slight line on the inner side, and an obscure conical appendage at the base.

Habitat.—High mountains in the North of England and Scotland; not unfrequent.

Perennial; flowering in July.

This is readily distinguished from all other of our species of *Luzula*, by its spiked inflorescence, which is more or less remotely lobed; sometimes the lobes are separated at the base, and rather lax: it is

also drooping from the top of the erect slender stem, and its darker colour narrow leaves and roundish ovate capsule distinguish it from the *L. pediformis* of Villers, which, though not found with us, is nearly allied to it, and has been thought hairy.

7. *L. arcuata*, Hook. (Fig. 590.) *Curved Mountain Wood Rush*. Panicle somewhat umbellate, of from three to five flowered clusters, on long drooping peduncles; bracteas membranous, fringed; perianth of six nearly equal broadly lanceolate bristle pointed segments, longer than the roundish ovate capsule; leaves channeled, slightly hairy.

Hooker in Fl. Lond. N. S. t. 153.—British Flora, vol. i. p. 170, and in English Botany, Suppl. t. 2688—English Flora, vol. ii. p. 183.—Lindley, Synopsis, p. 277.—*Juncus arcuata*, Wahl. Lapp. p. 87. t. 4.—*Juncus nivalis*, Don. Mss. in Herb. Brodie.

Root long branched downy fibres, with somewhat creeping underground stems, spreading around, and forming small tufts. *Stem* erect, from three to five inches high, round, smooth, finely striated, and bearing one or two short leaves, sheathing at the base, and enveloping the stem. *Leaves* from the root numerous, short, curved, linear, channeled, finely striated, smooth, or with a few fine soft hairs scattered over the margins, especially near the base, but generally soon falling away. *Panicle* terminal, of several slender recurved branches, in a somewhat umbellate manner, mostly simple, sometimes divided, terminating in a head of about three flowers, the foot of the branches as well as the base of each flower enveloped in one or two lanceolate membranous bractea, with ciliated margins. *Perianth* of six nearly equal broadly lanceolate pieces, of a dark brown colour, keeled at the back, which terminates in a slender bristly point. *Stamens* about half as long as the perianth, with yellow linear *anthers*, equal in length to the slender *filaments*. *Capsule* shorter than the perianth, roundish, ovate, bluntish, with a small point the base of the style. *Seeds* small, with an obscure conical appendage at the base.

Habitat.—Stony ground on the highest of the Grampian range of mountains, Scotland.—*Hooker*. Fonniven, a high mountain in Sutherland, and in Asscut.—*Dr. Graham*.

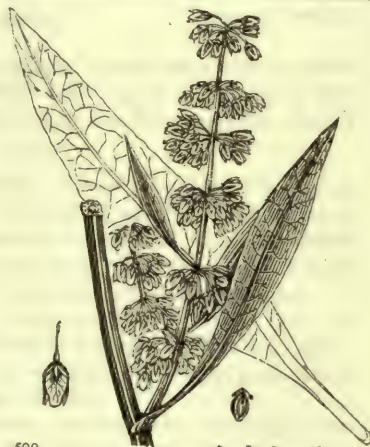
Perennial; flowering in July and August.

This interesting and rare species of *Luzula* grows in the most elevated situations of any of our species, and its season of flowering is dependent upon the more or less severe state of the weather. "The flowering season of this plant," observes Sir W. J. Hooker, "is August; but so severe is the climate at the elevation at which it grows, (upwards of 4,000 feet above the level of the sea), that it does not always come to perfection; and in the month of August, 1830, owing to the unusual quantity of snow which fell during the summer months, scarcely a perfect blossom appeared to have been formed."



591

Oxysia reniformis.



592

Rumex hydrolapathum



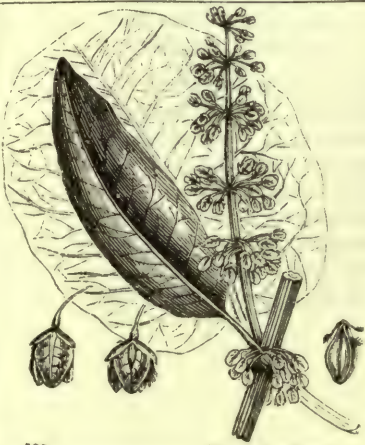
593

Rumex aquaticus



594

Rumex crispus.



595

Rumex alpinus.



596

Rumex sanguineus.

ORDER II.

DIGYN'IA. 2 PISTILS.

GENUS XXII. OXY'RIA.—HILL, *Mountain Sorrel*.

Nat. Ord. POLYGO'NEÆ. JCSS.

GEN. CHAR. *Perianth* of four pieces, the two outer ones smallest. *Stamens* six, two at the base of each of the inner segments, and one at the outer ones. *Styles* two. *Stigmas* tufted. *Fruit* a nut, with a winged membranous margin.—Name from οξύς sharp or sour; from the acidity of the plant.

1. *O. renifor'mis*, Hook. (Fig. 591.) *Mountain Sorrel*.

Hook. Scot. vol. i. p. 111.—British Flora, vol. i. p. 170.—English Flora, vol. ii. p. 188.—Lindley, Synopsis, p. 211.—*O. digyna*, Campder. monogr. t. 3. f. 3.—*Rumex digynus*, Linn.—British Flora, t. 910.—*Rheum digynum*, Wahlenb. Lapp. 101. t. 9. f. 2.

Root of long tapering fleshy branches, mostly divided and tufted at the top. *Stem* solitary, erect, from four to six inches high, roundish, striated, or furrowed, smooth, almost leafless, terminating in a branched panicle. *Leaves* numerous, radical, on long slender striated footstalks, from the base of a thin brown membranous *stipule*, all kidney-shaped, with a more or less evident sinus at the apex, or abrupt, the margins more or less waved, of a bright green; paler, and sometimes purplish beneath, thickish, with branched radiating veins from the top of the footstalk. *Flowers* numerous, arranged in whorled racemes, more or less crowded on the erect slender simple or divided branches, each flower on a slender simple rarely branched *peduncle*, arising from the base of a thin membranous *bractea*, which is somewhat sheathing at the base. *Perianth* of four pieces, the two outer ones narrower than the other two, which are roundish, ovate, three ribbed, not becoming larger after flowering, of pale green, slightly tinged with pink. *Stamens* shorter than the perianth, two arising from the base of the larger inner segment of the perianth, and one from each of the others. *Filaments* slender, anthers of two oblong lobes, of a purplish colour. *Styles* short, reflexed, with purple tufted much divided *stigmas*. *Fruit* a nut, enclosed in a thin membranous *utricle*, ovate, compressed, with a broad dilated winged margin, notched at the apex between the persistent styles, pale green, tinged with purple, and the base enclosed in the persistent dried petals.

Habitat.—Damp mountainous situation, between the clefts of rocks, &c. in the North of England, Wales, and Scotland; frequent. On

Magillicuddy's Reeks, and Brandon Mountain, County of Kerry; and on Ben Bulbin, County of Sligo, Ireland.

Perennial; flowering in July and August.

The Mountain Sorrel is nearly allied to the plants of the following genus, *Rumex*, and like them contains in its juices considerable acidity; in this species it seems more abundant than any of its allies, and there are but few persons who are accustomed to ramble and climb over the places of its growth, who, fatigued with the labour and overcome with thirst and heat, cannot testify to the grateful acidity of this plant, and the refreshing juice with which it abounds.

ORDER III.

TRIGYN'IA. 3 PISTILS.

GENUS XXIII. RUMEX.—LINN. *Dock and Sorrel.*

Nat. Ord. POLYGO'NEÆ. JUSS.

GEN. CHAR. *Perianth* of six pieces, the three outer ones somewhat united at the base, the three inner becoming larger after flowering. *Stigmas* tufted. *Nuts* with three sharp angles, enclosed in the persistent perianth.—Name of doubtful origin.

* *Plants not acid; flowers perfect; styles free.* (*Lapathum Tourneford, Dock.*)

a. *Enlarged pieces of the perianth entire.*

1. *R. Hydrolapathum*, Hud. (Fig. 592.) *Great Water Dock.* Enlarged pieces of the perianth ovate, triangular, entire or toothed at the base, each with a tubercle; whorls mostly leafless; leaves lanceolate, acute at each end, the margins waved or crenated.

Hooker, *British Flora*, vol. i. p. 171.—*English Flora*, vol. ii. p. 195.—Lindley, *Synopsis*, p. 211.—*Rumex aquaticus*, Poll.—*English Botany*, t. 2104.

Root large, fleshy, somewhat tuberous, with numerous long stout hairy fibres. *Stem* erect, from four to six feet high, stout, obtusely and irregularly angled, and furrowed, of reddish green, leafy, branched upwards. *Leaves* alternate, from one to two feet long, narrow, lanceolate, tapering at both ends, but much more so at the base than the point, on stout footstalks of variable lengths, quite smooth, of a somewhat glaucous green, the margins somewhat waved, and unevenly crenated or crisped, the upper ones more so than the lower, narrower, linear. *Inflorescence* a large terminal branched panicle, with nume-

rous crowded whorls of flowers close above, but separate in the lower part of the branches, which have also frequently one or two small narrow leaves. *Flowers* on slender *peduncles*, jointed near the base, at first erect, shortly drooping, thickened upwards, and at the base of the flower swollen into a conical shape. *Perianth* of six pieces, the three outer ones narrow, thick, and concave, the three inner ovate, thin, enlarging considerably after flowering, and becoming oblong, ovate, somewhat triangular at the base, the margin quite entire, or sometimes with two or three small teeth at the base, or waved, each one bearing in the centre an oblong tapering orange coloured tubercle, fleshy, smooth, frequently the size of the tubercles vary on each of the pieces, from the tubercles arise prominent reticulated veins. *Stamens* as long as the perianth, with very short slender *filaments* and long linear *anthers*, yellow, two celled. *Styles* three, thickening upwards. *Stigmas* tufted, much divided into slender filaments, persistent on the point of the ovate acutely three angled brown shining nut.

Habitat.—The margins of drains, river sides, and marshy lands; frequent.

Perennial; flowering in July and August.

2. *R. crispus*, Linn. (Fig. 594.) *Curled Dock*. Enlarged pieces of the perianth roundish, heart-shaped, entire, or crenated, acute, each with a tubercle, one larger than the others; whorls of numerous flowers, the upper ones leafless; leaves lanceolate, waved, curled, acute, the lower ones oblong, stalked.

English Botany, t. 1198.—English Flora, vol. ii. p. 192.—Hooker, British Flora, vol. i. p. 171.—Lindley, Synopsis, p. 211.

Root fleshy, long, tapering, rather slender. *Stem* erect, angular, and furrowed, smooth, from two to three feet high, somewhat zigzag, green or purplish, alternately branched and leafy. *Leaves* on channeled footstalks, long, flat, lanceolate, acutely pointed, the margins waved and much curled, the lower ones largest, frequently somewhat heart-shaped at the base, the upper narrow, numerous. *Inflorescence* a terminal alternately branched panicle, the branches simple, or two or three times divided. *Flowers* numerous, in crowded whorls, the lower ones more distant, and generally accompanied with leaves, on slender *peduncles*, jointed near the base, somewhat swollen under the flower, at first erect, becoming drooping. *Perianth* of six pieces, the three outer ones small, narrow, thick, concave, the three inner enlarged after flowering, roundish, ovate, heart-shaped at the base, the margin entire, or crenated, rarely toothed, reticulated, with prominent veins, all bearing tubercles, of a reddish yellow colour, becoming brown, but generally one is much larger than the other two, of an oblong shape. *Stamens* oblong, on slender *filaments*. *Styles* reflected, with tufted *stigmas*, persistent on the point of the ovate acute three angled pale brown shining nut, the angles blunt.

Habitat.—Road sides, waste places, pastures, &c.; frequent.

Perennial; flowering in June and July.

This is a very common species and a very troublesome weed, difficult of extirpation, from the great profusion of seeds which it produces, and from the long roots being with difficulty removed; and if only broken off, especially if near the top, it puts out fresh stems, and in the place of one frequently there are several.

3. *R. aquatilis*, Linn. (Fig. 593.) *Grainless Water Dock*. Enlarged pieces of the perianth broadly heart-shaped, membranous, netted with veins, entire, all without tubercles; leaves lanceolate, the lower ones oblong, heart-shaped, the margins waved and curled; footstalks channeled; whorls crowded, mostly leafless.

Hooker in English Botany, Suppl. t. 2698, and British Flora, vol. i. p. 171.—Lindley, Synopsis, Suppl. p. 328.

Root large, fleshy, with stout downy branches. *Stem* erect, angled, and furrowed, smooth, about three feet high, green or purplish, alternately branched above, and leafy. *Leaves* lanceolate, on channeled footstalks, somewhat hairy, or smooth, the upper ones lanceolate, narrow, the lower ones oblong-lanceolate, heart-shaped at the base, the margins irregularly crenated and waved, a dark green, paler beneath, mid-rib stout, with numerous prominent branched reticulated veins. *Inflorescence* a terminal branched large panicle, the branches simple, or two or three times divided, frequently slightly hairy. *Flowers* numerous, in crowded whorls, mostly without any accompanying leaves, the upper whorls crowded, the lower sometimes distant. *Perianth* of six pieces, the outer ones small, narrow, fleshy, concave, the two inner much enlarged after flowering, thin, almost membranous, roundish, heart-shaped at the base, entire, or with the margin curled or somewhat toothed, all destitute of any tubercle, but with a mid-rib, and from it numerous branched reticulated veins, prominent, and frequently tinged with purple. *Stamens* with slender *filaments* and rather small oblong *anthers*. *Styles* slender, spreading, with much divided *stigmas*, tufted, persistent on the point of the ovate triangular pale brown *nut*.

Habitat.—Watery places, near Ayr, Scotland.—*Mr. Goldie*—Hooker.

Perennial; flowering in July.

This species is nearly allied to *R. crispus*, from which it is distinguished by its larger more broadly heart shaped persistent pieces of the perianth, all destitute of tubercles; it has probably been from its near affinity confounded with *R. crispus*. It is frequent on the Continent, and from Pliny we learn that its roots are moderately digestive. It does not appear ever to have been applied to much use, and is now entirely neglected. It is called in Italy *Romice aquatica* and *Erba Britannica*.

4. *R. alpinus*, Linn. (Fig. 595.) *Alpine Dock*, or *Monk's Rhubarb*. Enlarged pieces of the perianth ovate, heart-shaped, membranous,

netted with veins, entire, or obscurely toothed at the margin, without tubercles; leaves broadly, heart-shaped, or roundish, obtuse, or shortly acuminate; footstalks channeled; whorls crowded, mostly leafless; flowers monœcious.

Hooker in English Botany, Suppl. t. 2694, and British Flora, vol. i. p. 172.—Lindley, Synopsis, Suppl. p. 328.—*R. cordifolius*, Hornem.

Root large, stout, fleshy, with long thickish branches. *Stem* erect, from two to three feet high, somewhat angled and furrowed, smooth green, or purplish, leafy, simple or branched. *Leaves* alternate, with thin pale brown membranous mostly torn *stipules*, footstalks long, channeled above, downy, as well as the prominent branched and netted veins on the under side of the leaf, the lower leaves broadly heart-shaped, from four to six inches wide, or roundish, obtuse, or with a shortly acuminate point, the middle ones oblong, and the upper narrow, lanceolate, frequently unequal at the base. *Inflorescence* a terminal, simple, or more frequently alternately branched panicle. *Flowers* numerous, in crowded whorls, sometimes two or three of the lower ones are distant, and with an accompanying leaf, drooping on a slender peduncle, thickened upwards, and jointed near the base. *Perianth* of six pieces, the two outer ones short, thick, obtuse, concave, the two inner becoming much enlarged, and of an ovate heart-shape, of a thin membranous texture, with a mid-rib, slightly swollen at the base, sometimes one of them forming a tubercle, branched into a beautiful reticulated appearance, becoming of a purplish colour, the margin entire or crenated, or obscurely toothed. *Stamens* and pistils in separate flowers. *Nuts* ovate, acute at each end, pointed at the apex by the base of the styles, three angled, the angles sharp, pale brown, shining.

Habitat.—Road sides, Gare Loch, *Hooker*; and Glen Luss, *Rev. M. J. Berkeley*; Highlands of Scotland, and near Dollar, *Mr. Trevelyan*.

Perennial; flowering in July.

The roots of this species have somewhat the appearance of the true Rhubarb (*Rheum palmatum*), and possess similar properties, but in a much less degree, requiring a larger dose to act upon the bowels. It is commonly known by the name of "Monk's Rhubarb." It is not unfrequent in the alpine districts of the Continent, and is known in Italy by the name of *Rabarbaro bastardo*, or *R. selvatico*; but it does not now appear to be applied to any particular use, except by the country people; and it is not unlikely that from the Monks in general being the only physicians that the poor in the mountainous districts have, and this being one of their medicines, it has obtained the name of Monk's Rhubarb.

5. *R. sanguineus*, Linn. (Fig. 596.) *Blood-veined Dock*. Enlarged pieces of the perianth oblong, acute, or obtuse, entire, one generally

bearing a tubercle; leaves lanceolate, acute, the lower ones heart-shaped at the base; whorls distant, of few flowered or erect long slender branches, the upper ones without leaves.

English Botany, t. 1533.—English Flora, vol. ii. p. 190.—Hooker, British Flora, vol. i. p. 172.—Lindley, Synopsis, p. 210.

Root slender, tapering, fleshy. *Stem* erect, from two to three feet high, round, or somewhat angular, striated, alternately branched above, smooth, slender. *Leaves* alternate, on channeled footstalks, having at the base long thin membranous tight sheathing *stipules*, the lower leaves oblong, lanceolate, acute at the point, and heart-shaped at the base, frequently contracted on the sides towards the base, giving it a sub-panduriform appearance, the upper ones narrower, and tapering at the base often unequally, the margins waved, and scarcely crenated. *Inflorescence* a branched panicle, with long slender erect scarcely spreading branches, mostly with distant whorls of flowers, the lower ones accompanied with a narrow leaf, the upper without. *Flowers* small, on slender drooping *peduncles*, of unequal lengths, with a swollen joint near the base. *Perianth* of six pieces, the two outer ones small, narrow, thick, concave, the inner enlarging after flowering, becoming oblong, with an obtuse or acute point, entire, reticulated with veins from the mid-rib, one only generally swollen at the base into a large prominent fleshy dark orange coloured tubercle. *Nuts* small, brown, polished, ovate, three angled, acute at the base, and at the apex, which is crowned by the persistent base of the styles.

Habitat.—Road sides, fields, and shady places; frequent.

Perennial; flowering in July.

The footstalks, mid-ribs, and veins of this species, as well as the stem, are of a crimson colour, which becomes much deeper as the plant advances to maturity.

6. *R. nemo'lapathum*, Linn. (Fig. 597.) *Green-veined Dock*. Enlarged pieces of the perianth oblong, obtuse, entire, becoming tuberculated; leaves lanceolate, waved and crenated, acute, the lower ones heart-shaped at the base; whorls few-flowered, on slender erect or spreading branches, the upper ones without leaves.

Lindley, Synopsis, p. 210.—Reicheub ic. fr. 551.—*R. nemorosus*, Schrad.—*R. sanguineus*, var. β . *viridis*.—English Flora, vol. ii. p. 190.—English Botany, t. 1533.—Hooker, British Flora, vol. i. p. 172.

This is nearly allied to the last species, from which it differs in the branches of the *panicle*, being more straggling, the enlarged segments of the *perianth* being more obtuse, and each bearing a tubercle, the *leaves* more waved and crisped, the footstalks, mid-ribs, and veins, are always green, mostly rather downy, as well as the branches of the panicle. How far it may be found permanently distinct from *R. sanguineus*, or merely modified by the circumstances of its growth, we are not fully prepared to state; from what we have observed we are



597

Rumex nemolapathum.



598

Rumex conglomeratus.



599

Rumex pulcher.



600

Rumex obtusifolius.



601

Rumex pratensis.



602

Rumex maritimus.

disposed to think them distinct. It is equally common with *R. sanguineus*, but never becomes of a crimson colour like that species.

Habitat.—Road sides, fields, and shady places; frequent.

Perennial; flowering in July.

7. *R. conglo'neratus*, Murr, (*prod. fl. Goett.* (Fig. 598.) *Sharp Dock*. Enlarged pieces of the perianth oblong, acute, entire, or with two or three obscure teeth, each bearing a tubercle; leaves lanceolate, acute, the margins crenated, the lower ones heart-shaped at the base; whorls distant, many-flowered, leafy, on spreading branches.

R. acutus, Linn.—English Botany, t. 724.—English Flora, vol. ii. p. 192.—Hooker, British Flora, vol. i. p. 172.—*R. glomeratus*, Spreng.—Lindley, Synopsis, p. 210.

Root slender, tapering, branched. *Stem* erect, angular, furrowed, somewhat zigzag, alternately branched frequently from the base upwards, leafy, the branches spreading, simple, sometimes divided. *Leaves* on channeled footstalks, lanceolate, acute or obtuse at the point, smooth, bright green, the margins waved and much crenated in an irregular manner, the lower ones heart-shaped at the base, the upper ones narrow, almost linear. *Flowers* numerous, in crowded globose rather distant whorls, each accompanied with a small leaf, diminishing upwards, a few only at the top without them. *Perianth* of six pieces, the three outer ones small, thick, concave, obtuse, the three inner ones becoming oblong, acute, reticulated with veins, and each bearing a large fleshy tubercle, the margin entire, or with two or three obscure teeth on each side towards the base. *Nut* broadly ovate, acute, the apex pointed with the base of the styles, acutely three angled, of a brown shining colour.

Habitat.—Moist watery places; not unfrequent.

Perennial; flowering in July.

This species is readily distinguished from the two preceding, by its spreading not erect branches, which are curved upwards, its much crowded distant whorls of flowers, each accompanied with a leaf, and by its large granules upon the enlarged pieces of the perianth.

b. Enlarged pieces of the perianth distinctly toothed.

8. *R. pul'cher*, Linn. (Fig. 599.) *Fiddle Dock*. Enlarged petals ovate oblong, numerously toothed, mostly only one bearing a tubercle; lower leaves oblong, fiddle-shaped; stem much branched and spreading; whorls distant, mostly leafy.

English Botany, t. 1576.—English Flora, vol. ii. p. 193.—Hooker, British Flora, vol. i. p. 172.—Lindley, Synopsis, p. 210.

Root tapering. *Stem* rather slender, somewhat angled and furrowed, leafy, and alternately branched, with slender spreading divided branches, bearing numerous distant whorls of few flowers, each accompanied by a small crisped lanceolate leaf, the lower and radical leaves on channeled footstalks, alternate, oblong, with an acute or obtuse point,

heart-shaped at the base, and mostly contracted about the middle into a fiddle-shape (panduriformis), the margins more or less waved and crisped, of a bright green, paler beneath. *Flowers* not very numerous in a whorl, on rather short drooping footstalks. *Perianth* of six pieces, the three outer ones thick, narrow, concave, the three inner becoming oblong, ovate, the margins deeply toothed, reticulated with veins, and each one swollen at the base of the mid-rib, but mostly only one becoming an oblong reddish fleshy tubercle. *Stamens* with yellow linear *anthers* and short *filaments*. *Nuts* ovate, acute at each end, smooth and shining, sharply three angled.

Habitat.—Road sides, pastures, and waste places; not unfrequent. Perennial; flowering in August.

The leaves of this species, though not always contracted about the middle into the remarkable panduriform shape, they are generally so; but it is readily distinguished by its long slender straggling branches of leafy whorls and toothed segments of the perianth.

9. *R. obtusifolius*, Linn. (Fig. 600.) *Broad-leaved Dock*. Enlarged pieces of the perianth ovate, triangular, toothed at the base, the point oblong, obtuse, entire, mostly only one bearing a tubercle; leaves ovate, heart-shaped; stem with erect branches; whorls numerous, distant, nearly leafless.

English Botany, t. 1999.—English Flora, vol. ii. p. 192.—Hooker, British Flora, vol. i. p. 173.—Lindley, Synopsis, p. 210.

β. discolor. Stem, petioles, veins of the leaves, and panicle, of a crimson colour. *R. purpureus*, Poir. dict. 5. p. 163.

Root tapering, fleshy. *Stem* erect, from two to three feet high, stout, angular, furrowed, rough between the furrows, leafy, alternately branched with erect simple or divided branches, bearing numerous rather distant whorls, of crowded flowers, the lower whorls only being accompanied with *leaves*, which are narrow, lanceolate, becoming linear, the lower and radical ones ovate, heart-shaped at the base, the point obtuse or acute, the margins more or less waved and crisped, the footstalks channeled and striated, and green, as well as the leaf, which is paler beneath, the mid-rib and veins more or less rough, with short flat hairs, and in the var *β.* the whole veins and ribs are of a crimson colour, otherwise it is not different. *Flowers* numerous, in rather distant whorls, on long slender peduncles, jointed about the middle, drooping *perianth* of six pieces, the three outer ones narrow, fleshy, concave, pointed, the three inner much enlarged after flowering, becoming ovate or ovate oblong, triangular at the base, and the margin on each side with three or four teeth, sometimes small, but mostly awl-shaped, slender, and the point is oblong, almost ligulate, acute or obtuse at the point, and entire, reticulated with veins, the mid-rib swollen at the base, but mostly only one into a tubercle, which is small, ovate, reddish brown. *Stamens* with linear ovate yellow *anthers* and

short filaments. Nut ovate, acute at each end, sharply three angled, smooth, deep brown.

Habitat.—Road sides, fields, and waste places; very common. The β . *discolor* in stony places less frequent.

Perennial; flowering in July.

The enlarged segments of the perianth with their entire long points and the broad obtuse lower leaves readily distinguish this species; it varies in the roughness of the stem and under side of the leaves, arising from the more or less humid situation of its growth; sometimes it is quite smooth. The base of the stem is mostly enveloped in the dried membranous base of the leaves and stipules, and around the stem at the foot of the lower leaves is generally a torn large stipule.

10. *R. pratensis*, (Mertens et Koch. Deutschl. fl. v. 2. p. 609.) (Fig. 601.) *Meadow Dock*. Enlarged pieces of the perianth ovate, heart-shaped, toothed at the base, the point triangular, entire, mostly one only bearing a tubercle; leaves oblong, heart-shaped, with a lanceolate or acute point; stem with erect branches; whorls of very numerous crowded flowers, nearly leafless.

Borrer in English Botany, Suppl. t. 2757.—Hooker, British Flora, vol. i. p. 171.—Lindley, Synopsis, Suppl. p. 328.—*R. cristatus*, Wallr. Schred. 163.

Root large, tapering. *Stem* erect, from three to four feet high, angular, deeply furrowed, smooth below, rough above, alternately branched, with simple or divided branches, frequently two arising from the same point on the stem, one of which is always much longer than the other. *Leaves* alternate, numerous, on channeled striated footstalks, the lower ones with large sheathing thin brown membranous stipules, the upper ones much smaller, the lower and radical leaves large, oblong, with an acute point, heart-shaped at the base, the upper ones narrower, lanceolate, entire, rounded or tapering at the base, frequently unequal, the margins waved, and more or less crisped, of a bright green, paler beneath, and rough on the mid-ribs and veins, as well as the footstalks, frequently there are two leaves arising from the same point of the stem, but one always much larger than the other. *Panicle* mostly very large, of erect straight or somewhat waved rough branches, whorls of flowers numerous, distant below, more crowded above, and not unfrequently at irregular distances, almost always without any accompanying leaf. *Flowers* very numerous, crowded, on slender curved peduncles, jointed below the middle, perianth of six pieces, the three outer ones narrow, linear, concave, thick, the three inner becoming larger, ovate, heart-shaped, unequal in size, the margins toothed towards the base, the teeth triangular, acuminate and awl-shaped, the point triangular, entire, smooth, reticulated with prominent veins, the mid-rib swollen at the base, but only the outer one bearing a tubercle, which is very prominent, ovate, reddish, the

others seldom more than slightly enlarged. *Nuts* acutely triangular, smooth, shining, of a dark brown colour.

Habitat.—Marshy places. Sussex, Essex, about London, Lincolnshire, and probably not unfrequent in other places.

Perennial; flowering in June and July.

This is distinguished from the last species by its triangular not oblong point of the enlarged pieces of the perianth; its teeth at the base are mostly shorter than in *R. obtusifolius*, and the leaves are larger, broader, and rougher beneath. From *R. crispus* it is known by its triangular distinctly toothed perianth, its larger leaves; in habit it is nearly allied to *R. nemolapthum*, but it is a much larger stouter plant, and is readily distinguished by the shape of the perianth, as it is also from *R. sanguineus*. We find it frequent in damp often shady places in various parts of Italy; but it is not, that we are aware of, applied to any particular purpose.

11. *R. maritimus*, Linn. (Fig. 602.) *Golden Dock*. Enlarged pieces of the perianth ovate, triangular, with a narrow linear point, and two or three bristle-shaped teeth on the margin, as long as itself, each bearing a narrow oblong tubercle; whorls dense, many flowered, leafy; leaves linear, lanceolate.

English Botany, t. 725.—English Flora, vol. ii. p. 193.—Hooker, British Flora, vol. i. p. 173.—Lindley, Synopsis, p. 219.

Root of numerous whorls of long branched fibres. *Stem* angular, furrowed, roughish, from one to two feet high, rather slender, erect, straight, or more generally zigzag, alternately branched, frequently from the base of a tawny red colour, the branches simple or divided, crowded with the dense whorls of very numerous flowers, each accompanied with a small narrow linear lanceolate leaf, on a tapering footstalk. *Leaves* lanceolate or linear-lanceolate, tapering into a footstalk, spreading, smooth, orange green, with an entire or slightly waved margin, the lower leaves larger than the upper, sometimes ovate at the base. *Perianth* of six pieces, the three outer narrow, linear, thick, very small, the three inner enlarged ones ovate, triangular, with a narrow linear-lanceolate entire point, or almost ligulate, the margins on each side with two or three, rarely four, spreading bristle-shaped teeth, as long as the whole perianth, each one bearing an oblong narrow fleshy tubercle, the *peduncle* is slender, thickened upwards, and jointed near the base. *Nuts* very small, ovate, triangular, acutely pointed at each end, acutely triangular, smooth, yellowish brown.

Habitat.—Marshes; most frequent near the sea.

Perennial; flowering in July and August.

This species, remarkable for the rich almost orange colour of the whole plant, and especially the very dense whorls of flowers, is readily distinguished from the following by the segments of the perianth, with their long bristle-shaped teeth, and the flowers and tubercles are much



603

Rumex palustris.



604

Rumex acetosa.



605

Rumex acetosella.



606

Scheuchzeria palustris.



607

Triglochin palustris.



608

Triglochin maritimum.

smaller, as indeed is the whole plant. It is found in inland marshes, as well as near the sea, but it is not very frequent.

12. *R. palustris*, Smith. (Fig. 603.) *Yellow Marsh Dock*. Enlarged pieces of the perianth ovate, with an entire lanceolate point, and two or three awl-shaped teeth on the margin, about half as long as itself, each bearing a large ovate tubercle; whorls separate, many-flowered, leafy; leaves linear, lanceolate, crenated.

English Botany, t. 1932.—English Flora, vol. ii. p. 194.—Hooker, British Flora, vol. i. p. 173.—Lindley, Synopsis, p. 210.—*R. maritimus*, Huds.

Root tapering, fleshy, with many whorled branched fibres. *Stem* erect, from two to three feet high, stout, angled and deeply furrowed, straight, or somewhat zigzag, alternately branched and leafy, of a deep golden yellow, roughish, the branches erect, or somewhat spreading, simple, or divided. *Leaves* linear-lanceolate, on somewhat channeled footstalks, green, paler beneath, smooth, the margins waved and crenated in a crisped manner, the lower leaves oblong, lanceolate, obtuse at the base, much longer and larger than the upper ones, those accompanying the whorls narrow, linear, long. *Flowers* very numerous, in densely crowded rather distant whorls, each accompanied with a leaf. *Perianth* of six pieces, the three outer ones narrow, linear, tapering, the three inner enlarged ones ovate-lanceolate, with an entire point, the margins in the lower half with two or three awl-shaped teeth, about half as long as the perianth, each bearing a large ovate oblong fleshy tubercle, of a reddish colour. *Peduncles* slender, thickened upwards, and jointed below the middle. *Nuts* broadly ovate, acute at each end, the apex pointed with the base of the styles, acutely angled, of a dark shining brown.

Habitat.—Marshy places remote from the sea, not common, and chiefly in the South of England.

Perennial; flowering in July and August.

The whorls when in fruit, though of a somewhat tawny appearance, are far from having the golden yellow colour of *R. maritimus*; and its larger flowers, with conspicuous large tubercles and short teeth in rather distant whorls, renders its general aspect very different from *R. maritimus*, with its densely crowded flowers having a remarkable bristly appearance from the long teeth of the perianth, and being more leafy and of a bright colour, renders it a conspicuous plant, strikingly different from *R. palustris*.

** *Plants acid. Flowers diœcious. Styles attached to the angles of the ovary. Leaves hastate, or sagittate. Acetosa Tornef. Sorrels.*

13. *R. Aceto'sa*, Linn. (Fig. 604.) *Common Sorrel*. Enlarged pieces of the perianth roundish, heart-shaped, membranous, entire, the outer pieces reflexed; leaves oblong, arrow-shaped or spear-shaped, veiny; stipules lacinated.

English Botany, t. 127?—English Flora, vol. ii. p. 196?—Hooker, British Flora, vol. i. p. 173.—Lindley, Synopsis, p. 211?

Root long, slender, tapering, and with branched fibres. *Stem* erect, from one to two feet high, somewhat angled, furrowed, smooth, simple, green, with alternate leaves, and a terminal simple panicle. *Leaves* oblong, acutely pointed, arrow-shaped, with four lobes at the base, the two lower ones acute, curved inwards, the two upper smaller, acuminate, the margins entire or waved, and more or less crisped, the lower and radical leaves on channeled footstalks, the upper sessile, each having at its base a pair of lanceolate cut thin membranous *stipules*, the whole plant quite smooth, or clothed at the base of the stem, the petioles and under side of the leaves with short close down. *Flowers* in rather distant small whorls, without any accompanying leaves, on short slender recurved *peduncles*. The *barren flowers* bearing stamens only on separate plants, of a greenish red colour, the perianth of six nearly equal roundish ovate pieces, membranous, remaining unchanged, the *stamens* ovate oblong, two-celled, on short *filaments*. The *fertile flowers* bearing the styles mostly of a deeper red colour, the *perianth* of six pieces, the three outer ones small, becoming closely reflexed upon the short slender peduncles, the three inner becoming much enlarged into a roundish heart-shape, entire, or somewhat waved on the margin, thin, membranous, with a mid-rib and numerous netted veins, the base in all the specimens we have seen is never enlarged into a tubercle. *Nuts* broadly ovate, acutely pointed at each end, and acutely three-angled, shining, dark brown, almost black.

Habitat.—Meadows and pastures; frequent.

Perennial; flowering in June and July.

This, the common Sorrel or "green sauce," contains a pleasant degree of acidity in its leaves, on account of which it is cultivated for the making of sauces, and entering into the composition of sallads; but it is not now so much used as formerly, though it is more esteemed on the Continent than with us. It is thought to be a useful refrigerent and antiscorbutic, and taken with advantage in some diseases of the skin.

14. *R. Acetosella*, Linn. (Fig. 605.) *Sheep's Sorrel*. Enlarged pieces of the perianth ovate, heart-shaped, membranous, entire, the outer pieces erect, close pressed; leaves lanceolate, spear-shaped, entire.

English Botany, t. 1674.—English Flora, vol. ii. p. 197.—Hooker, British Flora, vol. i. p. 173.—Lindley, Synopsis, p. 211.

Root slender, tapering, simple or branched, and fibrous. *Stem* from four to twelve inches high, solitary or several, erect, or frequently curved at the base, slender, angular, furrowed, simple or branched, mostly zigzag, smooth, green. *Leaves* alternate, the radical ones frequently numerous, on channeled footstalks, varying from ovate-lanceolate to linear-lanceolate, having on each side at the base a narrow acute spreading lobe, the upper leaves with shorter footstalks, or sessile,

tapering at the base, and frequently without the lateral lobes, quite smooth, dark green, paler beneath, changing in the autumn into bright red, at the base of the footstalks and branches is a pale thin membranous *stipule*, lanceolate, mostly torn. *Flowers* in small distant leafless whorls, on slender simple or divided branches, those flowers bearing stamens only of six nearly equal roundish segments, green or red, with a thin membranous margin. *Stamens* with ovate two celled *anthers*, on short *filaments*, the *fertile flowers* with the perianth of six pieces, the three outer ones smaller, narrower than the three inner, which are ovate, somewhat heart-shaped, thin, membranous, without tubercles. *Nuts* broadly ovate, acutely three angled, and at the apex the base somewhat obtuse, a dark shining brown colour.

Habitat.—Dry, gravelly, or sandy pastures, &c.; frequent.

Perennial; flowering in June and July.

This is a much smaller plant than the last, possessing similar properties, and used for the same purposes; it grows in dryer, more barren places, and changes after flowering into a deep red or crimson colour. Several varieties of this plant are mentioned as being found on the Continent, having only one lobe at the base of the leaf, or without, and also the lobes cut into two or three small ones; we have not met with them, but it is probable they may be found, and perhaps might cause some difficulty to the student in determining species.

GENUS XXIV. SCHEUCHZERIA.—LINN. *Scheuchzeria*.

Nat. Ord. JUNCA'GINEÆ. RICHARD.

GEN. CHAR. *Perianth* persistent, of six pieces. *Anthers* elongated, upon very slender filaments. *Capsules* three to six, united at the base, roundish, inflated, each two-valved, and one or two-seeded.—

Named in honour of the three *Scheuchzers*, Swiss Botanists.

1. *S. palus' tris*, Linn. (Fig. 606.) *Marsh Scheuchzeria*.

English Botany, t. 1801.—English Flora, vol. ii. p. 198.—Hooker, British Flora, vol. i. p. 174.—Lindley, Synopsis, p. 252.

Root branched, slender fibres, with creeping underground stems, jointed, and more or less clothed in pale sheaths, which, when pulled out, has a cottony appearance. *Stem* erect, solitary, simple, straight, or waved, round, smooth, from six to twelve inches high, clothed below in the dry pale membranous sheaths of the leaves. *Leaves* few, long, roundish, rush-like, sheathing at the base, which has at the top a pair of thin membranous lanceolate *stipules*. *Inflorescence* a terminal raceme, of about six *flowers*, each on a *peduncle*, elongated when in fruit, and arising from the base of a *bractea*, the lower ones long and leafy, sheathing at the base, the upper small, lanceolate, membranous. *Perianth* of six equal narrow reflexed persistent pieces, oblong, acute,

pale green. *Stamens* arising opposite the segments of the perianth, with slender *filaments*, bearing large linear reflexed yellow two celled *anthers*. *Ovaries* from three to six, having at the apex and side the sessile *stigma*, which is linear, downy. *Capsules* from three to six, attached at the base, and spreading around, roundish, inflated, somewhat compressed, acutely pointed, each of one cell, bursting with two valves, and from one to two seeded. *Seeds* oblong.

Habitat.—Marshy places; rare. Discovered in a marsh at Lakely Car, near Boroughbridge, Yorkshire, by the Rev. J. Dalton; and at Thorne Moor, near Doncaster, in the same County, by Mr. R. Harrison; Methven, near Perth, Scotland.—Mr. Duff.

Perennial; flowering in June.

This rare and remarkable plant was first discovered as a native of this country, by the Rev. J. Dalton, in the year 1807, and by Mr. Duff, in Scotland, in 1833. It is by no means a common plant on the Continent, but is, according to Smith, more plentiful in Sweden, Denmark, Norway, and Lapland. In many respects it will be observed how nearly allied it is in the structure of its flowers and fruit to the following genus.

GENUS XXV. TRIGLO'CHIN.—LINN. *Arrow-grass*.

Nat. Ord. JUNCA'GINEÆ. RICHARD.

GEN. CHAR. *Perianth* of six deciduous pieces. *Anthers* nearly sessile. *Capsules* from three to six, each single-seeded, united at the angles, and mostly separating from the base.—Name from τρεῖς, *three*; and γλῶχις, *corner or angle*; from the three angles of the capsules.

1. *T. palustris*, Linn. (Fig. 607.) *Arrow-grass*. Fruit linear, angular, tapering at the base, of three single celled capsules; raceme elongated, many flowered; ligula short, obtuse.

English Botany, t. 366.—English Flora, vol. ii. p. 199.—Hooker, British Flora, vol. i. p. 174.—Lindley, Synopsis, p. 252.

β. *repens*. Root with creeping underground stems, jointed, scaly and bulbous.

Root of numerous long slender branched fibres. *Leaves* all radical, numerous, long, linear, fleshy, slightly channeled on the upper side, erect, sheathing at the base with a short obtuse *ligula*. *Scape* erect, from twelve to eighteen inches high, round, smooth, slender, tapering upwards, simple, naked, terminating in a simple racemose spike of numerous *flowers*, becoming rather distant, each elevated on a short slender footstalk, of a green colour. *Perianth* of six nearly equal ovate or ovate oblong acute pieces, concave, and falling away after flowering, the three outer ones rather shorter than the inner. *Stamens*

with very short *filaments*, the *anthers* ovate, of two cells, shorter than the perianth. *Stigmas* feathery, sessile. *Fruit* linear, tapering at the base, and somewhat contracted at the apex, of three teeth, formed of three united capsules, each single celled and single seeded, separating from the base, and standing off, giving it a barbed or arrow-shaped appearance.

The leaves and stems, when bruised, have a fetid smell and saline taste. It is eaten by beast and sheep with apparent relish.

Habitat.—Wet marshy places; frequent.

Perennial; flowering in June and July.

2. *T. maritimum*, Linn. (Fig. 608.) *Sea side Arrow-grass*. Fruit ovate, of six single celled capsules; raceme elongated, many-flowered; ligula oblong, obtuse.

English Botany, t. 255.—English Flora, vol. ii. p. 201.—Hooker, British Flora, vol. i. p. 174.—Lindley, Synopsis, p. 252.

Root of numerous long branched spreading fibres. *Leaves* all radical, numerous, long, linear, tapering, roundish, scarcely channeled above, dilated at the base into a thin sheath, with membranous margins, terminated at the top into an oblong obtuse *ligula*. *Scape* erect, from twelve to eighteen inches high, round, smooth, terminating in spikes of numerous flowers, becoming elongated after flowering. *Flowers* of a pale green, each elevated on a short footstalk, or nearly sessile. *Perianth* of six nearly equal roundish concave pieces, somewhat fleshy, falling away after flowering. *Stamens* sessile, or on a very short *filament*, the *anthers* ovate, about as long as the perianth, two celled. *Stigmas* small, sessile, feathery. *Fruit* roundish, ovate, formed of six united capsules, each containing a single seed.

Habitat.—Marshes and wet places near the sea.

Perennial; flowering in August.

This is a stouter, more robust, and fleshy plant, than *T. palustris*, and is readily distinguished by its capsules when in fruit, and by its oblong ligules before flowering. It has a more saline taste and stronger odour than the *T. palustris*, and is eaten with as great, or even greater, relish by most cattle than the other species.

It is well known to farmers and others that there is a constant tendency in all herbage, even in a dry season, and much more so in a rainy, in wet meadows and marshy districts, to grow so rapidly, as to want much in firmness and the usual qualities of the plant: that is, to become "watery," juices being less elaborated into the bitter and saline principles, which all plants in a greater or less degree contain. In consequence of this the herbage is much less wholesome, far less nutritious, and a frequent cause of disease, as is so frequently exemplified in the more delicately constituted animals presently suffering from grazing upon it, thus producing those maladies which prove one of the greatest losses to the grazier.

But in all things we may recognise an all-wise Providence; thus in the instance before us, wet districts produce the *Triglochius*, which always abounds in those stimulating saline qualities to supply the deficiency in other plants which grow in the same places, thus rendering that which otherwise is unwholesome and unprofitable, useful and valuable. But in the cultivation of the land, as in other things, we are apt to overlook the provisions of nature, and to outstep the bounds which she has provided, and as we depart from her ways so we shall find our errors.

GENUS XXVI. TOFIELDIA.—HUDS. *Scottish*
Asphodel.

Nat. Ord. MELANTHACEÆ. R. BROWN.

GEN. CHAR. *Perianth* of six deciduous pieces, with minute bracteas at the base of the peduncle. *Stamens* smooth. *Capsules* three to six, united below the middle, many seeded. *Seeds* roundish, oblong.—Name in honour of *Mr. Tofield*, an English Botanist.

1. *T. palustris*, Huds. (Fig. 609.) *Scottish Asphodel*. Spike ovate; stem slender, leafy at the base; segments of the perianth obovate, obtuse; germen three lobed; bractea small, enveloping the base of the peduncle, three-cleft; leaves linear, sword-shaped, roughish on the margins, many ribbed.

English Botany, t. 536.—English Flora, vol. ii. p. 198.—Hooker, British Flora, vol. i. p. 173.—Lindley, Synopsis, p. 264.—*T. calyculata*, Wahlenberg. Helv. p. 68.—*Anthericum calyculatum*, Linn. sp. 447.—*A. Bendoasphodelus*, Jacq.—*Helonias borealis*, Willd. sp. pl. v. 2. 274.

Root of long slender branched fibres. *Leaves* numerous, almost all radical, fasciculated, linear, sword-shaped, about an inch long, attenuated into an acute point, mostly rough on the margins towards the point, with minute rigid bristles pointed forwards, many ribbed at the base, but mostly only three in the upper half. *Stem* erect, slender, almost thread-shaped, round, smooth, erect, from two to four inches high, simple, bearing two or three leaves, which envelope it at the base, and terminating in an ovate *spike* of greenish yellow *flowers*, dense when in flower, becoming lax in fruit, and each flower elevated on a short *peduncle*, having at its base a minute membranous *bractea*, which surrounds it, and is cleft into three angular teeth. *Perianth* of six pieces, the three outer ones rather shorter and narrower than the three inner obovate obtuse ones. *Stamens* inserted opposite the segments of the perianth, with smooth awl-shaped *filaments*, as long as the perianth, bearing roundish heart-shaped *anthers*. *Styles* short on the point of the three-cleft three-celled *ovarium*, terminating in an obtuse *stigma*. *Fruit* a three-cleft three-celled *capsule*, spreading



609 *Toxifolia palustris.*



610 *Colchicum autumnale.*



611 *Actinocarpus damascenium.*



612 *Auzema plantago.*



613 *Auzema ranunculoides.*



614 *Auzema vatacs.*

above, united at the base, membranous, inflated, each *cell* containing numerous small elliptical *seeds*.

Habitat.—Boggy places in the mountainous districts of England, Scotland, and Ireland, but not very common.

Perennial; flowering in July and August.

This species is nearly allied to *T. borealis*, Wahlenberg. fl. lapp. p. 89, which has small globose spikes of flowers, and the leaves only three ribbed, having the segments of the perianth ovate, tapering at the base, and it is altogether a smaller plant; it grows on the summit of the alpine mountains, near the line of perpetual snow on the European Continent, and we have it from Labrador, in North America.

GENUS XXVII. COLCHICUM.—LINN. *Meadow Saffron.*

Nat. Ord. MELANTHACEÆ. R. BROWN.

GEN. CHAR. *Perianth* single, tubular, long, with a campanulate six-partite limb. *Stamens* inserted at the top of the tube. *Styles* very long. *Capsules* three, single celled, united at the base, inflated, many seeded.—Name from *Colchis*, a city of Armenia, where this plant is said to have been common.

1. *C. autumnale*, Linn. (Fig. 610.) *Autumnal Crocus*, or *Meadow Saffron*. Limb of the corolla cut into five or six lanceolate segments; stamens each alternately longer than the other; leaves broadly lanceolate, acute, erect.

English Botany, t. 133.—English Flora, vol. ii. p. 202.—Hooker, British Flora, vol. i. p. 174.—Lindley, Synopsis, p. 264.

β. serotinis. Flowers abortive, with the limb of narrow green linear segments.

English Botany, t. 1432.—English Flora, vol. ii. p. 202.

Bulb large, ovate, solid. *Leaves* produced in the spring without the flowers, but with the capsule, dark green, smooth and shining, about a foot long, and an inch and half broad, obtusely lanceolate, erect, or somewhat flaccid, withering away before the flowers appear in the autumn. *Flowers* several, appearing in succession one after the other, from the crown of the bulb, in the autumn without leaves, with a long narrow tube, enveloped at the base in a thin membranous sheath, the limb a pale purple, of five or six oblong lanceolate segments, the three outer ones rather smaller than the other, and with a more tapering point. *Stamens* inserted into the base of the segments of the perianth, three alternate ones rather shorter than the three others. *Filaments* slender, awl-shaped, about half as long as the perianth, with oblong yellow *anthers*, of two cells. *Styles* three, very long,

arising from the top of the germen at the bottom of the tube. *Stigmas* downy, recurved, linear. *Fruit* appearing in the spring with the leaves, oblong, acute, smooth, inflated, on a long slender peduncle, formed of three single celled *capsules*, united at the base, each containing numerous roundish ovate brown *seeds*.

Habitat.—Rich meadows, not common; most frequent in the North-west of England, in Suffolk, Oxfordshire, Staffordshire, and Cheshire. Nottinghamshire, Alloa in Scotland.—*Lightfoot*.

Perennial; flowering in September and October.

The Autumnal Crocus, called also Naked Lady, from the circumstance of its beautiful flowers appearing without any leaves, is a plant of extreme interest and value. It is interesting, from the remarkable habit of its growth, its large leaves appearing in the spring with the nurslings which it had cherished during the colds of winter, and which are perfected in the more congenial season of the year, to propagate its species in the scattering abroad its numerous seeds; and its flowers, when almost all others have ceased to bloom, burst forth and deck the rich meadows even in an autumnal garb of fair and beautiful forms:

“Say what impels amid surrounding snow
 Congealed, the Crocus flaming but to glow?
 Say what retards amid the summer blaze,
 The autumnal bulb till pale declining days?
 The God of Seasons whose pervading power
 Controuls the sun, or sheds the fleecy shower:
 He bids each flower his quickening word obey,
 Or to each lingering bloom enjoins delay.”

White.

The germination of the Spring Crocus (p. 39.) is similar to this, but the appearance of its capsules is not so long delayed.

Colchicum is also valuable as a medicine, its bulbs, flowers, and seeds all possessing the same qualities, but in a greater or less degree: this depends upon the presence of an alkaloid principle of Narcotico-acrid properties, and is similar to that found as the active principle in White Hellebore, *Veratrum album*, and others of the same genus, and has been called *Veratra*. It is obtained in a whitish pulverised state, and in small doses excites violent vomiting and purging; it is extremely active, seeming, from the experiments that have been made, to be poisonous to all classes of animals, and to act in whatever way it is introduced into the system, always producing irritation of the alimentary canal and nervous system. The bulbs and seeds of the Colchicum are the parts of the plant selected for medical use. The bulbs are in the greatest state of perfection after the disappearance of the leaves and before the flowers appear, that is from June to about the middle of August, and it is only at this season of the year that they ought to be collected for medical use; and to preserve its virtues, the bulbs are,

while fresh, to be cut into thin slices, and carefully dried in a moderate temperature, and when perfectly dry to be kept in bottles well closed, from the atmosphere. It is from the want of care in selecting the proper season for collecting the bulbs, and in the preparation and preservation of them, that such contradictory reports are given of its virtues: for the bulbs before or after maturity, when not perfected by the leaves, or when the juices are impaired by the production of flowers, are far from being so active, and unless carefully dried and kept from the action of the atmosphere, the active principles are liable to be destroyed. The seeds are far less liable to variation in their activity, and are more easily preserved than the bulbs, and are, therefore, preferable for medical use. Their activity resides in the testa; and in the preparation of the spirituous tincture, which is the most elegant form of administering them, they ought not to be bruised.

The principal use to which *Colchicum* has been applied in this country is in alleviating the pain and diminishing the paroxysms of gout, over which and rheumatism it seems to possess almost a specific controul. It has been found also useful in dropsical affections and humeral asthma, seeming in these cases to act beneficially upon the alimentary canal.

ORDER IV.

HEXAGYN'IA. 6 PISTILS.

GENUS XXVIII. ACTINO'CARPUS.—BROWN. *Star-fruit*.

Nat. Ord. ALISMA'CEÆ. R. BROWN.

GEN. CHAR. *Calyx* of six pieces. *Petals* three. *Ovaries* from six to eight. *Capsules* united at the base, and spreading in a star-like manner, each two seeded.—Name from *ακτιν*, a ray; and *καρπος*, a fruit; from the curious radiated disposition of the capsules.

1. *A. Damasonium*, Br. (Fig. 611.) *Common Star-fruit*. Capsules six, compressed, pointed, bursting longitudinally; leaves oblong, five ribbed.

Hooker, in *Flora Lond. N. S.*—*Alisma Damasonium*, Linn.—English Botany, t. 1615.—English Flora, vol. ii. p. 204.—Lindley, *Synopsis*, p. 253.

Root of numerous long pale branched fibres. *Leaves* all radical, oblong, acute at the point, and obtuse or somewhat heart-shaped at the base, with a stout mid-rib and four lateral veins near the margins, floating on the surface of the water, elevated on a many-ribbed foot-

stalk, dilated below with a pale thin membranous margin. *Scape* erect, from four to six inches high or more, round, smooth, simple, bearing two, sometimes three sessile umbels, one above another; peduncles about six in number, simple, single-flowered, surrounded at the base with two or three membranous ovate *bracteas*. *Flowers* white, yellow at the bottom. *Calyx* of three ovate concave pieces, persistent, green. *Petals* three, roundish, with a short claw, longer than the calyx. *Stamens* with awl-shaped filaments, shorter than the petals, and roundish two-celled yellow *anthers*. *Capsules* six, compressed, narrow pointed, keeled, united at the base, and spreading in a star-like manner, bursting longitudinally, each containing two seeds "upon evident stalks, one from the upper angle horizontal, the other from the lower angle of the axis, erect, oblong, tuberculated and transversely striated, compressed, with a deep furrow on each side, occasioned by the form of the embryo within, which is cylindrical, and bent double somewhat like a horse-shoe."—*Hooker*.

Habitat.—Ditches and pools, especially in a gravelly soil in the middle and south-eastern counties of England.

Perennial; flowering in June and July.

ORDER V.

POLYGYN'IA. MANY PISTILS.

GENUS XXIX. ALIS'MA.—LINN. *Water Plantain*.

Nat. Ord. ALISMA'CEÆ. R. BROWN.

GEN. CHAR. *Calyx* of three pieces. *Petals* three. *Ovaries* numerous, *Nuts* distinct, numerous, clustered, indehiscent, single-seeded, deciduous.—Name from *alis*, water in Celtic, all the species of this genus growing in water.

1. *A. Planta'go*, Linn. (Fig. 612.) *Greater Water Plantain*. *Scape* terminating in whorled panicles; leaves all radical, ovate, acute; carpels obtusely triangular, numerous, in a roundish flat head.

English Botany, t. 837.—English Flora, vol. ii. p. 203.—*Hooker*, British Flora, vol. i. p. 175.—*Lindley*, Synopsis, p. 253.

β. lanceolatum. Leaves lanceolate, tapering at the base.

A. lanceolata, Withering.—*A. Plantago*, var. *β*. Willd. and Smith.—English Flora, vol. ii. p. 203.

γ. graminifolium. Leaves linear, floating.

A. Plantago, *γ. graminifolium*, Wahlenb. suc.—*A. graminifolium*, Ehrh. herb.—*A. Plantago*, var. *γ*. Smith.—English Flora, vol. ii. p. 203.

Root of numerous long branched fibres, from a tuberous base. *Leaves* all radical, ovate, acute, entire, or heart-shaped at the base, with a stout mid-rib, and three lateral ones on each side, and numerous transverse ones, erect, elevated above the water on stout footstalks, channeled and dilated at the base, with a pale thin membranous margin; in the varieties the leaf is lengthened out into a lanceolate shape in β ., and perfectly linear in γ ., long and floating on the surface of the water; sometimes there are one or two amongst them somewhat lanceolate and erect. *Scape* erect, from one to three feet high, round, smooth, terminating in a compound panicle of whorled flowers, one whorl being elevated above the other, and having at its base several membranous brown dry ovate-lanceolate *bractea*, each of the flowers elevated on a *peduncle*, the *calyx* of three roundish concave striated pieces. *Corolla* of three roundish petals, with a short claw, a pale pink, sometimes white, yellow at the base, delicately veined, as large again as the calyx, the margins irregular. *Fruit* roundish, flat, of numerous obtusely triangular *capsules*, arranged in a circle round the receptacle, each having on the back one or two furrows.

Habitat.—The margins of lakes, rivers, and ditches; frequent.

Perennial; flowering in June and July.

The varieties of this species are very remarkable, and show the curious adaptation of the leaves to the various situations in which they may be accidentally grown. The variety β . *lanceolatum* grows in situations where the water has risen, and in consequence of this the leaf becomes elongated, that it may elevate itself above the surface of the water to perform its appointed functions; and the variety γ . *graminifolium* has its leaves elongated by growing in rapid streams.

The Water Plantain has had the reputation of being a specific for the cure of canine madness. The powder of the dried tuberous base of the stem was administered in doses of from one to three drachms daily, and the leaves made into a poultice and applied to the wound. Cases of cures by this means have been reported; but from the knowledge of the influence of the hydrophobic poison upon the system which we possess, we are much disposed to the belief that some error must have been committed, in supposing that the individuals ever had the virus introduced into the system. The tubers abound in starchy matter, which is perfectly harmless when dried and powdered, and affords a nutritious article, which the Kalmuc Tartars are said to use as food.

2. *A. ranunculoides*, Linn. (Fig. 613.) *Lesser Water Plantain*. Scape terminating in a simple umbel, or one whorl above the other; leaves all radical, linear, lanceolate; carpels five angled, acute, numerous, in a globose head.

English Botany, t. 326.—English Flora, vol. ii. p. 205.—Hooker, British Flora, vol. i. p. 176.—Lindley, Synopsis, p. 253.

β. repens. Smaller, with creeping runners. Scapes mostly single flowered.

English Botany, t. 2722.—Hooker, British Flora, vol. i. p. 176.—*A. repens.*—English Flora, vol. ii. p. 205, (but considers it a variety p. 206).—Lindley, Synopsis, p. 253.

Root of numerous long mostly simple fibres. *Leaves* all radical, small, lanceolate, or linear lanceolate, on long stout footstalks, dilated at the base, channeled on the upper side, soft, spongy, quite smooth, very variable in length, together with the *stem*, which is sometimes not more than an inch, and at others twelve inches or more high, round, smooth, erect, rather slender, terminating in a simple umbel of numerous flowers, and not unfrequently there is another umbel elevated on a lateral stalk above the other. *Peduncles* mostly long, slender, erect, and all about the same length, each bearing a solitary flower; in the variety *repens* it appears as though the flowering stem had from some cause or other become procumbent, and that the umbel from its base puts out fibrous roots, and in the place of the rays of the umbel bearing flowers, some of them are degenerated into leaves, and mostly there is one or several of them bearing a flower, not formed into an umbel, but only a solitary flower, as in the normal state. *Flowers* numerous, white, or pinkish yellow at the base. *Calyx* of the spreading roundish ovate pieces, the *corolla* of three petals, roundish, with a short claw, uneven on the margin, and finely veined. *Capsules* numerous, crowded into a globose head, each capsule oblique, compressed, acute at each end, five ribbed, single seeded.

Habitat.—Marshes, bogs, and ditches; not unfrequent in England, Scotland, and Ireland. *β. repens* in North Wales, and ditches at the Murrow of Wicklow, Ireland.

Perennial; flowering in August and September.

3. *A. na'tans*, Linn. (Fig. 614.) *Floating Water Plantain.* Flowers solitary, on a slender peduncle; leaves of the stem ovate or oblong, obtuse, those of the root linear, sessile; stem thread-shaped, floating, rooting; capsules from six to twelve, oblong, curved, beaked, numerous striated.

English Botany, t. 775.—English Flora, vol. ii. p. 204.—Hooker, British Flora, vol. i. p. 176.—Lindley, Synopsis, p. 253.

Root of numerous long fibres, bearing numerous tapering lanceolate thin membranous pale striated scales, or abortive leaves, always beneath the water. *Stems* mostly several, slender, thread-shaped, from three to ten or twelve feet long, floating, and putting out at various intervals tufts of leaves and several flowers, and mostly long radicals, which attach themselves to the ground or float in the water. *Leaves* ovate or ovate-oblong, acute at the point and base, about an inch long, on long slender footstalks, arising from the base of a pale thin membranous ovate concave *stipule*. *Flowers* two or three from each joint, solitary, on slender simple *peduncles*, larger than the two last species,



white or pinkish, with a yellow base and short claw. *Calyx* of three spreading ovate concave pieces. *Petals* three, roundish, veined, with a wavy margin. *Capsules* from six to twelve, in a roundish head, each capsule oblong, obtuse, with a beaked point, recurved, and numerous striated, single seeded.

Habitat.—Lakes and ditches. North Wales and Cumberland; very rare in Scotland, Black Loch, six miles from Stranraer; very plentiful in Cunnamara, and the large Marsh on the Hill of Howth, County of Down, Ireland.—*Mr. Templeton*.

Perennial; flowering in July and August.

CLASS VII.

HEPTAN'DRIA. 7 STAMENS.

ORDER I.

MONOGY'NIA. 1 PISTIL.

GENUS I. TRIENTA'LIS.—RUPP. *Chickweed Wintergreen*.

Nat. Ord. PRIMULACEÆ. Juss.

GEN. CHAR. *Calyx* seven-partite. *Corolla* plane, of seven segments, united at the base into a ring. *Stamens* seven, inserted into the ring. *Capsule* somewhat fleshy, of one cell, bursting with seven valves. *Seeds* numerous.—“Name from *triens*, a third part, and said to allude to this plant, being one-third of a foot in height; but such a meaning is very equivocal.”—*Hooker*.

1. *T. Euro'pæa*, Linn. (Fig. 615.) *European Chickweed Wintergreen*. Leaves oblong, or oblong ovate, obtuse.

English Botany, t. 15.—English Flora, vol. ii. p. 207.—*Hooker*, British Flora, vol. i. p. 176.—Lindley, Synopsis, p. 185.

Roots fibrous, from a slightly swollen base of the stem, which is from three to six inches high, erect, somewhat tortuous beneath the ground, round, smooth, simple, naked, except having one or two small abortive leaves, distant, and crowned with a tuft or terminal whorl of large ones, unequal in size, ovate, obtuse, or oblong ovate, with an acute point, and tapering at the base into a short footstalk, quite smooth, rather paler, and sometimes glossy beneath, with a mid-rib, and numerous lateral much branched reticulated slender veins, and from the axis of the leaves arises from one to four flowers, elevated on slender

simple *peduncles*, as long or longer than the leaves, the flower solitary, with a deep partite *Calyx* of linear lanceolate segments, which vary in number from six to nine, as does also the corolla and valves of the capsule. *Corolla* of a pure white, becoming rather pink, its segments oblong, lanceolate, united at the base into a ring, but not forming a tube. *Stamens* inserted into the ring, with slender *filaments* half as long as the corolla. *Anthers* linear, becoming curved after bursting. *Style* slender, longer than the stamens, swollen upwards into an obtuse *stigma*. *Capsule* globose, somewhat fleshy, of one cell, opening with about seven elliptic oblong incurved concave valves, soon falling away. *Seeds* attached to the central free fleshy receptacle, roundish, covered with a beautiful fine white netted coat.

Habitat.—Woods and shady places in the North of England, but rare; more frequent in the Highlands of Scotland.

Perennial; flowering in May and June.

CLASS VIII.

OCTAN'DRIA 8 STAMENS.

ORDER I.

MONOGY'NIA. 1 PISTIL.

GENUS I. A'CER.—LINN. *Maple*.

Nat. Ord. ACERI'NEÆ. DE CAND.

GEN. CHAR. *Calyx* five-cleft. *Petals* five. *Flowers* polygamous. *Stamens* eight, rarely five or ten. *Fruit* of two carpels, united at the base, each with a long membranous wing, single-celled, and from one to two seeded.—Name from *acer*, sharp or hard; from the hardness of the wood or the qualities of the juice.—The *Maple* is the badge of the Scottish Clan *Olipphant*.

1. *A. Pseudo-platanus*, Linn. (Fig. 516.) *Greater Maple*, or *Sycamore*. Leaves five-lobed, opaque glaucous beneath, unequally serrated; racemes pendulous, elongated, compound at the base; ovary villous; fruit smooth, with broad spreading wings.

English Botany, t. 303.—English Flora, vol. ii. p. 230.—Hooker, British Flora, vol. i. p. 179.—Lindley, Synopsis, p. 55.

A large tree, with spreading branches, of quick growth, the bark smooth, of a pale ash colour. *Leaves* numerous, opposite, on rather



616

Acer pseudo-platanus.



617

Acer campestre.



618

Epilobium angustifolium



619

Epilobium hirsutum.



620

Epilobium parviflorum.



621

Epilobium mentanum.

long slender footstalks, smooth, channeled above, unequal, five lobed, the two lower ones smallest, the middle one the largest, mostly acutely pointed, and unequally doubly crenated or serrated, a smooth palish lively green above, beneath an opaque glaucous, having five ribs, numerous branched, and very minutely sub-divided into a net work of veins, quite smooth, except at the axis of the ribs is a dense tuft of white woolly hairs. *Inflorescence* an elongated pendulous raceme from the axis of the leaves, compound towards the base, simple above, scattered over with hairs, the *peduncles* thickened upwards. *Flowers* a yellowish green, numerous, polygamous. *Calyx* deeply divided into five linear segments, obtuse, sometimes spatulate, hairy, persistent. *Petals* similar to the calyx. *Stamens* on slender *filaments*, inserted into a hypogynous disk, those of the male flowers longer than the calyx. *Anthers* rather large, oblong, of two cells, bursting laterally. *Style* as long as the stamens, with a recurved two or three lobed *stigma*. *Ovarium* densely clothed with white shining hairs, two lobed. *Fruit* of two or three one or two seeded roundish carpels, united at the base, terminating in broad membranous veined wings, about an inch long.

Habitat.—Groves, hedges, plantations, &c. ; naturalised.

Tree; flowering in May.

This is a large handsome tree, much cultivated from the beauty of its appearance in pleasure grounds and plantations, or formed into groves. It grows wild in the hilly or mountainous districts of Switzerland, Germany, Italy, &c. in the South of Europe; but it is remarkably hardy, and is become perfectly naturalized with us, and is one of our best trees for maritime situations, as it is not injured by the spray of the sea, and so firmly rooted as to resist the high winds, and form a protection to other trees. It is one of our first trees to put out its leaves in the Spring, and retains them until late in the Autumn; but it soon becomes covered with a sweetish exudation, and attracts on that account numerous kinds of insects, which frequently in a short time greatly disfigure it. We have some seasons observed this exudation so great as to be inconvenient to persons sitting under the trees, keeping a pavement over which they spread their branches in a constant state of moisture. The sap not only of this, but all the species of the genus contains in considerable quantities saccharine matter; and from *A. saccharinum*, a North American species, the sap is collected by wounding the trees, and when evaporated leaves an excellent kind of sugar, which is afterwards refined and granulated in the same way as that obtained from the sugar cane. The wood of the *Sycamore*, or as it is frequently called *mock Plane*, from its resemblance to the Plane tree (*Platanus occidentalis*), a North American species, and which it almost equals in beauty, is soft, and is mostly used by turners, and for light or ornamental articles, saddle trees, millwright work, &c.

2. *A. campestre*, Linn. (Fig. 617.) *Common Maple*. Leaves five lobed, the lobes oblong, entire, or sub-dentated; racemes erect, downy; fruit smooth or downy, with horizontal wings.

English Botany, t. 304.—English Flora, vol. ii. p. 231.—Hooker, British Flora, vol. i. p. 179.—Lindley, Synopsis, p. 55.

A small tree, with spreading opposite branches, and rough bark, deeply fissured, that of the young branches smooth dark brown. *Leaves* opposite, on downy channeled footstalks, unequally five lobed, entire, or mostly, each lobe is oblong and obtusely three lobed, and more or less waved or toothed, glossy, and nearly smooth above, paler and downy beneath, five ribbed, with tufts of white hairs in the axis of divarication, and very finely reticulated with small pellucid veins. *Inflorescence* an erect racemose corymb of yellowish green downy flowers, on branched downy pedicles. *Calyx* of one piece, with about five ligulate segments, scattered over with rather long white hairs, especially on the margins. *Petals* alternating with and narrower than the segments of the calyx, attached to the under edge of the *disk*, which is thick, fleshy, and forms a broad rim round the germen. *Stamens* on slender *filaments*, longer than the petals, inserted into depressions of the disk. *Anthers* rather large, yellow, of two cells, and mostly hairy between the lobes. *Styles* short, with two spreading *stigmas*. *Capsules* two, or rarely three, united at the base, smooth or downy, single seeded, with smooth or downy membranous veined horizontal wings.

Habitat.—Hedges and thickets; not uncommon, rare and scarcely indigenous to Scotland or Ireland.

Tree; flowering in May and June.

Of this species we have observed several varieties in the leaves being more or less downy, the lobes narrower, and more toothed and entire, and acutely pointed: the flowers are also variable, sometimes they are larger than is common, with a larger and more fleshy disk; and the fruit is sometimes scattered over with hairs, and is green or finely marked with rich crimson coloured veins. The changes which take place in the flowers of this species are remarkable. Shortly after the anthers have discharged their pollen, the disk shrinks and loses its fleshy appearance, and the ovary rapidly enlarges, projecting laterally its membranous wings; the style is enlarged, the stigmas elongated and recurved, or contorted, while the stamens and petals having performed their offices, hang loosely at their base, and at length fall away. From which it would seem that the disk is the source from whence the stamens derive their immediate supply of nutriment; and after they have performed their function, the store of nutriment contained in the disk is applied to the ovary, and probably materially assists it in its speedy development.

The common Maple forms, when cultivated, a pretty little ornamental tree; its wood is harder than that of the last species, and is

said to be preferable for the purposes of the turner: it is frequently used by the mathematical instrument makers instead of the Box or Holly. It is not unfrequently very beautifully veined, and is then much valued by the cabinet-maker for the manufacture of fancy articles. The Romans, we are told, formerly set a high value upon their tables made of this wood.

GENUS II. EPILOBIUM.—LINN. *Willow Herb.*

Nat. Ord. ONAGRARIÆ. JUSS.

GEN. CHAR. *Calyx* tubular, four angled, with a four-partite deciduous limb. *Petals* four. *Stamens* eight. *Style* filiform, with a two or four cleft *stigma*. *Capsule* linear, four angled, four celled, four valved, and many seeded. *Seeds* with a tuft of hairs at one extremity.—Name from *ἐπι*, upon; and *λοβος*, a pod; from the flower being placed upon the top of the pod or seed vessel.

Sect. *. *Chamænerion*. Tauch. *De Cand. prod.* 3. p. 40. *Flowers irregular. Petals ovate. Filaments dilated at the base, reflexed. Stigmas recurved. Leaves alternate or irregular.*

1. *E. angustifolium*, Linn. (Fig. 618.) *Rose-bay Willow herb.* Leaves scattered, linear, lanceolate, entire, or waved, veined, smooth; flowers sub-spicate; petals unequal, obovate, with a short claw.

English Botany, t. 1947.—English Flora, vol. ii. p. 212.—Hooker, British Flora, vol. i. p. 182.—Lindley, Synopsis, p. 108.—*E. spicatum*, Lam. dict. vol. ii. p. 373.—De Cand. Prod. vol. iii. p. 40.

Root with long creeping fleshy underground stems, putting out numerous stems. *Stems* from three to six feet high, erect, mostly simple, round, smooth, leafy, mostly reddish above. *Leaves* numerous, scattered, nearly sessile, linear, lanceolate, smooth, somewhat pellucid, pale and glaucous beneath, with a strong mid-rib and numerous slender netted veins, the margin entire or waved, sometimes slightly toothed. *Inflorescence* sub-spicate, terminal, of numerous flowers, on short peduncles from the axis of narrow leafy *bractea*. *Flowers* inodorous, of a fine crimson colour, with unequal obovate petals, mostly notched, and with a short claw. *Calyx* with an obtusely angular hoary tube and a limb of four lanceolate deciduous pieces, reddish, and mostly waved on the margin. *Stamens* on slender *filaments*, dilated at the base, and becoming reflexed, shorter than the style, with elliptic two celled *anthers*. *Style* slender, downy at the base. *Stigmas* of two or four large recurved lobes, white, at length with the style reflexed. *Capsule* very long, of four obtuse angles and furrows, four celled, bursting with four linear valves, with central placentas. *Seeds* very numerous, small, oblong, crowned with a small feathery tuft of white hairs.

Habitat.—Moist shady banks and meadows in several parts of England; more frequent in Scotland, and not very common in Ireland. Perennial; flowering in July and August.

This very handsome ornamental plant, frequently called Persian or French Willow is frequently cultivated in our gardens, and on the sides of damp hedges, or amongst low shady plantations, has a very beautiful appearance not only when it is in flower, but at all times, as it is a very graceful and elegant plant. It is sometimes found with white flowers, and the whole plant of a paler green; the leaves are also found much broader than is common, it is then the variety *β. latum* (Surness), De Cand. Prod. 3. p. 40, *E. angustifolium*, *β.* Linn. *E. spicatum*, De Cand. Fl. Fr. 4, p. 420, *E. latifolium*, Schmidt. Fl. Bohem. n. 372, not Linn. It is found in all parts of Europe, and in America. It is not by us applied to any other than ornamental purposes, but according to Haller, as quoted in Loudon's Encyclopædia of Plants, p. 319, the young shoots are eaten, although an infusion of the plant stupifies; the pith when dried is boiled, and becoming sweet is by a proper process made into ale, and this into vinegar by the Kamtschatdales; it is also added to the cow parsnip, to enrich the spirit that is prepared from that plant. As fodder, it, like all other of the genus, is not of much value, though eaten by most cattle, and the down upon the seeds has been mixed with cotton, &c. and manufactured into various articles of clothing.

** *Lysimachion*. Tauch. De Cand. prod. 3, p. 41. *Flowers regular. Petals obcordate. Filaments erect. Leaves opposite, the upper ones alternate.*

a. Stigmas four cleft.

2. *E. hirsutum*, Linn. (Fig. 619.) *Great Hairy Willow-herb.* Stem round, erect, very hairy, branched; leaves opposite and alternate, oblong, lanceolate, irregularly serrated, amplexicaul, hairy; calyx segments mucronate; stigmas four-cleft, deflexed.

English Botany, t. 838.—English Flora, vol. ii. p. 213.—Hooker, British Flora, vol. i. p. 183.—Lindley, Synopsis, p. 180.—*E. amplexicaule*, Lam. Dict. 2, p. 374.

Root with long creeping underground stems. *Stem* erect, from four to five feet high, round, mostly much branched in the upper part, leafy, and thickly covered with long soft woolliness, the long slender hairs mostly bearing glands, that exude an unctuous kind of fluid, giving the plant a clammy feeling and a peculiar scent, compared to the flavour of "codlings and cream," which name the plant sometimes bears with country people. *Leaves* opposite, in the upper part alternate, lanceolate or oblong lanceolate, sessile, and embracing the stem, sometimes slightly decurrent, with a strong mid-rib and branched lateral veins, the margins mostly deeply serrated, with numerous incurved sharp teeth, the upper side deep green, the under paler, and

clothed with a thick soft down. *Inflorescence* a large terminal leafy corymb, of numerous large rose coloured *flowers*, the *calyx* tube obtusely four angled and furrowed, the limb of four ovate lanceolate concave pieces, with an obtuse mucro at the point. *Petals* inversely heart-shaped, of a delicate pink, as long again as the calyx segments. *Stamens* with erect simple *filaments* and ovate two celled yellow *anthers*. *Style* erect, with a four cleft large white *stigma*, spreading or reflexed. *Capsule* very long, clothed with short soft down, sometimes with long spreading hairs, four valved, four celled, and many seeded, the seeds small, ovate, crowned with a tuft of soft white longish hairs.

Habitat.—Watery places, the banks of ditches, damp hedges, &c.; frequent.

Flowering in June and July.

A remarkable variety is found on the Continent, and probably with us also. The stem, branches, and leaves, are clothed with close soft hairs, but the peduncles and calyx are covered with very long woolly hairs. It is the *β. intermedium* of De Candolle Prod. vol. 3, p. 42, and the *γ. villosissimum* of Koch. Fl. Germ. et Helvet. p. 240, and the *E. intermedium* of Merat. Fl. par. 147.

It is a gay pretty looking plant on the margins of lakes, the banks of rivers, &c.; but much less elegant in its appearance than the *E. angustifolium*, and is much less frequently cultivated in our gardens than that species.

3. *E. parviflorum*, Schreb. (Fig. 620.) *Small-flowered hairy Willow herb*. Stem erect, round, simple, very downy; leaves sessile, lanceolate, distantly serrated, downy on both sides; stigmas four-cleft, spreading; root fibrous.

English Botany, t. 795.—English Flora, vol. ii. p. 214.—Hooker, British Flora, vol. i. p. 183.—Lindley, Synopsis, p. 180.—*E. molle*, Lam. Dict. 1, p. 475.—*E. hirsutum*, *β. Linn.*—*E. villosum*, Curt. Lond. fasc. 2, t. 22.

Root of numerous long branched fibres. *Stem* erect, from one to three feet high, round, simple, rarely branched, leafy, clothed with a soft down, more or less dense. *Leaves* lanceolate or oblong lanceolate, sessile, opposite in the lower part of the stem, above alternate, clothed on both sides with a thickish short soft simple down, paler on the under side than above, the margins indistinctly serrated with short small distant teeth, sometimes altogether wanting. *Inflorescence* a terminal leafy sub-corymb, mostly of numerous *flowers*, which are much smaller than the last, on short slender peduncles, of rather a pale rose colour. *Calyx* with a four bluntly angled furrowed tube, and a limb of four ovate oblong hairy pieces. *Petals* four, inversely heart-shaped, short clawed, of a pale rose or purplish colour. *Stamens* erect, on slender simple *filaments*, with roundish two celled yellow *anthers*, the *style* erect, simple, with a four-cleft rather large *stigma*, the lobes spreading,

not reflexed. *Capsule* long, slender, four angled, furrowed, nearly smooth or downy, four valved, four-celled, and many seeded, the *seeds* small, ovate, crowned with a tuft of long silky hairs.

Habitat.—Marshes, wet meadows, the banks of streams, ditches, &c.; frequent.

Perennial; flowering in July.

The leaves of this species are very variable in length and width, and sometimes greatly resembles small specimens of *E. hirsutum*; but the stem is rarely branched, the flowers are much smaller, and the lobes of the stigmas are spreading, not reflexed.

4. *E. monta'num*, Linn. (Fig. 621.) *Broad smooth-leaved Willow herb*. Stem erect, round, pubescent; leaves ovate or ovate oblong, unequally toothed, the lower opposite, shortly petiolated; stigmas four-cleft, spreading; root fibrous.

English Botany, t. 1174.—English Flora, vol. ii. p. 214.—Hooker, British Flora, vol. i. p. 183.—Lindley, Synopsis, p. 180.

β. *verticillatum*, Koch. Leaves three in a whorl, smooth, with downy veins.

Root fibrous. *Stem* mostly erect, from one to two feet high or more, round, covered with a short close pubescence, simple or branched upwards, leafy. *Leaves* numerous, ovate or ovate oblong, mostly with a lanceolate point, sometimes obtuse, on short footstalks, rarely sessile, opposite in the lower part of the stem, alternate above, sometimes they are all opposite, and at others alternate, smooth and glossy, of a cheerful green, paler on the under side, with a stout mid-rib and branched downy veins, occasionally of a pinkish colour, the margin irregularly serrated, with unequal teeth, mostly numerous, sometimes distant and small. *Inflorescence* a terminal leafy elongated corymb of axillary *flowers*, of a pale pink colour. *Calyx* tube downy, obtusely four angled, furrowed, with a limb of four ovate lanceolate pieces. *Petals* four, inversely heart-shaped, of a pale pink, sometimes white, nearly as long again as the calyx. *Stamens* on slender erect *filaments*, with small ovate two celled yellow *anthers*, the *style* longer than the stamen, with a four-cleft spreading *stigma*. *Capsule* very long, of four valves, four cells, and many seeded, the *seeds* small, ovate, crowned with a tuft of white long silky hairs.

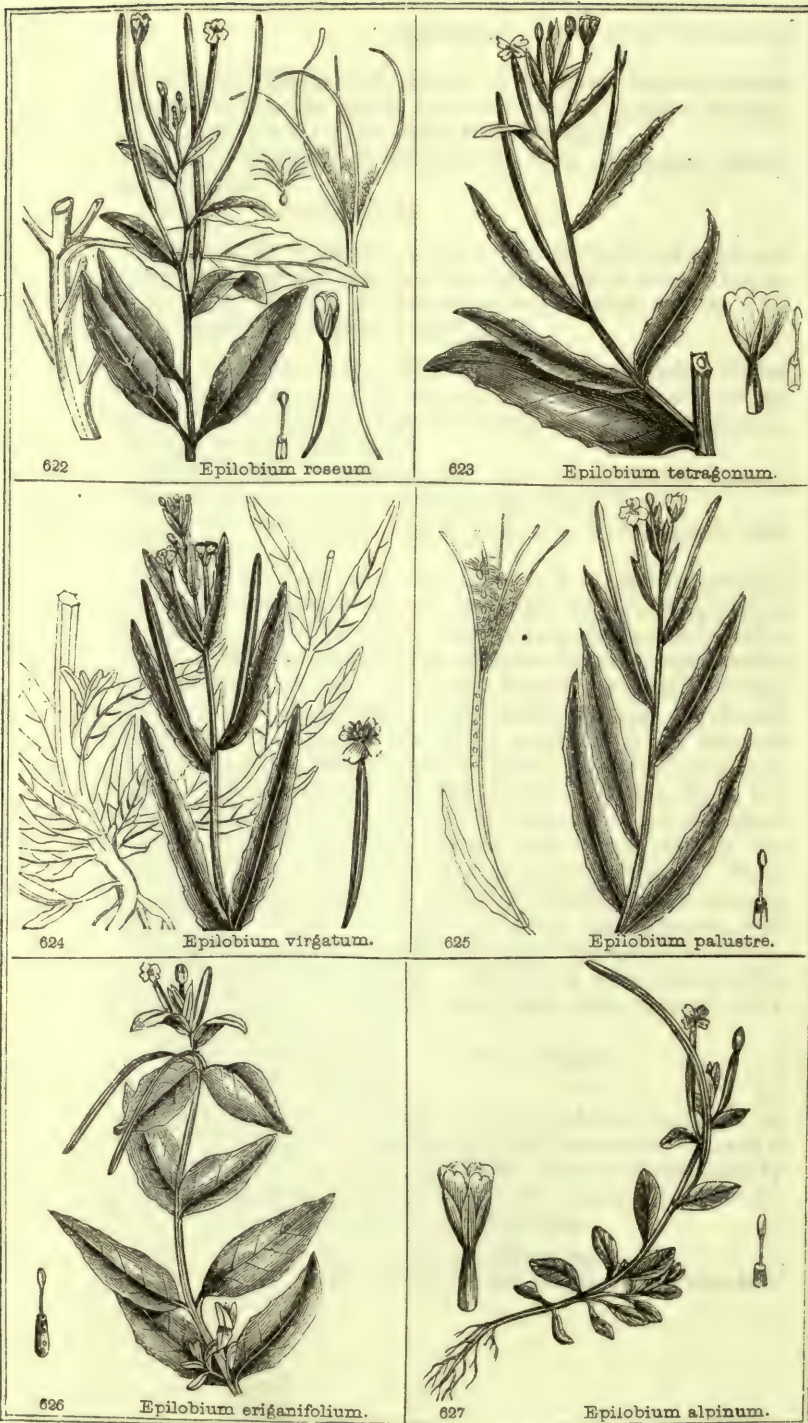
Habitat.—Dry shady banks, walls, &c.; frequent.

Flowering in June and July.

This is a very variable species as to size and the situation of its leaves. The variety β. *verticillata* is a very remarkable one, and is nearly allied to *E. trigonum*, of Schrank, which is distinguished by the stem being marked with from two to four elevated lines, and the lobes of the stigmas being united into a club-shape.

b. *Stigmas* entire, or club-shaped.

5. *E. rose'um*, Schreber. (Fig. 622.) *Pale smooth-leaved Willow herb*.



Stem erect, much branched, with two or four elevated lines; leaves opposite, petiolate, ovate lanceolate, unequally serrated, the margins and veins downy; flowers nearly sessile; capsules on long peduncles; stigmas club-shaped.

English Botany, t. 693.—English Flora, vol. ii. p. 215.—Hooker, British Flora, vol. i. p. 183.—Lindley, Synopsis, p. 180.

Root fibrous, branched. **Stem** erect, from one to two feet high or more, erect, round, with two or four elevated lines, smooth, or somewhat downy above, much branched, or only slightly so, and sometimes simple, rarely hairy. **Leaves** numerous below, opposite, alternate above, on slender footstalks, ovate lanceolate, or ovate oblong, with a downy mid-rib and branched lateral veins, often of a pinkish colour, as well as the stem, the margins irregularly serrated, sometimes almost entire, and fringed with soft down. **Inflorescence** a terminal leafy elongated corymb, of numerous flowers, of a pale pink, with darker veins. **Flowers** nearly sessile, with a smooth or downy calyx, the limb of four ovate acute segments. **Petals** half as long again as the calyx, inversely heart-shaped. **Stamens** erect, on slender filaments. **Style** longer than the stamens, with a club-shaped stigma. **Capsule** on an elongated peduncle, often as long as itself, smooth, or mostly covered with a soft close down, obtusely four angled, furrowed, of four valves, four celled, and many seeded, the seeds ovate, crowned with a tuft of long silky hairs.

Habitat.—About London, Essex, Sussex, and we have found it on dry banks near Lincoln, and Mansfield, Nottinghamshire; Forfarshire, Scotland.—*Mr. Drummond*.

Perennial; flowering in July.

6. *E. tetragonum*, Linn. (Fig. 623.) *Square-stalked Willow herb*. Stem with four elevated lines, much branched, nearly smooth; leaves lanceolate, toothed, sessile, the lower ones opposite, and shortly petiolated; stigmas club-shaped.

English Botany, t. 1943.—English Flora, vol. ii. p. 215.—Hooker, British Flora, vol. i. p. 183.—Lindley, Synopsis, p. 180.

Root fibrous, with somewhat creeping underground stems. **Stem** erect, from one to two feet high, smooth below, slightly downy above, almost square from four elevated lines, frequently pinkish, and very much branched often from the base. **Leaves** numerous, the lower ones opposite, the upper alternate, lanceolate, narrowed towards the point and base, the lower ones with a short footstalk, the rest sessile, slightly decurrent, smooth above, the mid-rib veins and margins on the under side downy, the margins irregularly and distantly toothed. **Flowers** few in the axils of the upper leaves, nearly sessile, the calyx tube clothed with close pressed soft down, the limb of four lanceolate downy pieces, the petals four, inversely heart-shaped, rather longer than the calyx, pale rose colour. **Stamens** on slender simple filaments; with small roundish yellow anthers, of two cells. **Style** rather longer

than the stamens, with a club-shaped *stigma*. *Capsule* very long, narrow, four angled, four valved, four celled, and many seeded, the *seeds* small, ovate, crowned with a tuft of long white silky hairs.

Habitat.—Wet places, ditches, sides of rivers, &c.; frequent.

Perennial; flowering in July.

This species is readily distinguished from *E. roseum* by its sessile narrower leaves, and the stem being much more distinctly marked with the decurrent lines.

7. *E. virga'tum*, Fries. novit. flor. suec. p. 115. (Fig. 624.) *Rod-like Willow herb*. Stem erect, slightly downy, with two or four elevated lines; leaves opposite, the upper alternate, lanceolate, gradually narrowing from the rounded base to the point, sessile, or with a short footstalk, distantly toothed; stigmas club-shaped, or spreading.

Koch. Fl. Germ. et Helv. p. 241. "*E. obscuram*, Reicheub. Fl. g. exsisc. n. 358."

Root somewhat woody, with long branched fibres, and short creeping underground stems. *Stem* erect, about two feet high, simple, scarcely branched at the top, round, with four elevated lines, scarcely downy below, except on the lines, more so above. *Leaves* numerous, crowded just above the surface of the ground, more distant upwards, opposite, a few of the upper alternate, sessile, narrow, lanceolate, rounded at the base, and gradually tapering to the point, the lower radical ones only tapering at the base into a short footstalk, distantly and irregularly toothed, rarely entire, quite smooth above, paler on the under side, except on the stout mid-rib, the branched veins and on the margin it is downy, which in the lower leaves is generally of a pink colour. *Flowers* few, solitary from the axis of the upper leaves, small, sessile, the *calyx* tube obtusely four angled, clothed with short close pressed pubescence, the *limb* of four ovate lanceolate segments. *Petals* rather longer than the calyx, inversely heart-shaped, pale rose coloured. *Stamens* with simple slender *filaments* and small ovate yellow *anthers*, shorter than the *style*, with its club-shaped *stigmas*, sometimes lobed and spreading. *Capsule* on a short footstalk, long, nearly cylindrical, scarcely furrowed, four valved, four celled, and many seeded, the seeds small, ovate, crowned with a tuft of long white silky hairs.

Habitat.—Marshy places about Lincoln; rare.

Perennial; flowering in July.

This species we have only collected about Lincoln, but it is probably not unfrequent in other places, but is overlooked for *E. palustris*, from which and all its varieties it differs in the stem being distinctly marked by four rarely two elevated lines, the leaves being rounded, not tapering at the base, and the margin toothed, and gradually tapering into rather an obtuse point, and the stem scarcely branched. It is found, though not common, in the northern parts of Germany and Switzerland.

8. *E. palus'tre*, Linn. (Fig. 625.) *Narrow-leaved Marsh Willow herb*.

Stem round, branched, sub-hirsute, as well as the narrow lanceolate entire or obsoletely toothed leaves, wedge-shaped at the base, and sessile, the lower opposite, the upper alternate; stigmas club-shaped.

English Botany, t. 346.—English Flora, vol. ii. p. 216.—Hooker, British Flora, vol. i. p. 183.—Lindley, Synopsis, p. 108.

Root fibrous, with short slender creeping underground stems. A very variable plant in size and luxuriance. *Stem* erect, from a few inches to two feet high, mostly much branched, sometimes simple, round, rarely indistinctly marked with lines from the angles of the leaves, smooth, or scattered over with close pressed hairs, sometimes in lines only, while the rest of the stem is quite smooth, and occasionally it is found with spreading hairs. *Leaves* numerous, opposite in the lower part of the stem, alternate in the upper, narrow, lanceolates sometimes linear, sessile, with a wedge-shaped base, tapering upward, into a bluntish point, smooth, or scattered over with hairs, paler on the under side, with a strong mid-rib and branched lateral veins, the margins entire or irregularly toothed, frequently slightly rolled back. *Flowers* from the axil of the upper leaves of the stem and branches, at first sessile. *Calyx* tube nearly cylindrical, clothed with close pressed white hairs, sometimes spreading, the limb of four ovate lanceolate pieces. *Petals* half as long again as the calyx, inversely heart-shaped, of a pale rose colour. *Stamens* with simple erect *filaments*, and small roundish yellow *anthers*, shorter than the *style*, with its linear club-shaped *stigmas*. *Capsule* very long, on an elongated footstalk, furrowed, four valved, four celled, and many seeded, the *seeds* small, ovate, crowned with a tuft of long white silky hairs.

Habitat.—Marshes, wet meadows, banks of rivers, &c.; frequent.

Perennial; flowering in June and July.

9. *E. origani'folium*, (Lamarch. Dict. 2. p. 376. pub. 1786.) (Fig. 626.) *Marjoram-leaved Willow herb*. Stem simple, smooth, ascending; leaves opposite, nearly smooth, lucid, ovate, acuminate, remotely toothed, shortly petiolated; stigmas club-shaped.

De Candolle Prodrômus Systematis Naturalis. pars. 3. p. 41.—Koch. Flora, German Helv. p. 242.—*E. alsinifolium*, Villars. Dauph. vol. iii. p. 511. pub. 1789.—English Botany, t. 2000.—English Flora, vol. ii. p. 216.—Hooker, British Flora, vol. i. p. 184.—Lindley, Synopsis, p. 108.

Root small, fibrous, with creeping underground stems, forming matted tufts. *Stem* ascending, simple, from four to twelve inches high, smooth in the lower part, more or less downy above, marked with two elevated lines, sometimes four. *Leaves* opposite, above mostly alternate, on short footstalks, ovate lanceolate, or ovate, with an acuminate point, a pale sub-pellucid green, somewhat glaucous on the under side, quite smooth, with a slender mid-rib and branched slender veins, the margins waved, or distantly and irregularly toothed. *Flowers* few from the axis of the upper leaves, nearly sessile. *Calyx* tube almost

cylindrical, with four flowers, clothed with close pressed white hairs, the *limb* of four lanceolate scarcely downy segments. *Petals* four, rose colour, broadly heart-shaped, with a short claw. *Stamens* erect, with simple *filaments* and ovate small yellow *anthers*, rather shorter than the erect *style*, with its club-shaped *stigmas*. *Capsule* elevated on an angular footstalk, frequently as long as itself, which, like the capsule, as it approaches to maturity becomes quite smooth, the four valves obtusely angular, four celled, and many seeded, the *seeds* small, ovate, crowned by a tuft of long white silky hairs. In all our specimens the germen, as it enlarges, becomes reflexed upon its footstalk.

Habitat.—Sides of Alpine rivulets, not common. On the Cheviot hills.—*Mr. Winch*. Aber waterfall, North Wales.—*Mr. W. Wilson*. More frequent in Scotland, especially on the Highland Mountains. Perennial; flowering in July.

This species has much resemblance to small specimens of *E. montanum*, from which it differs in the stigmas, being club-shaped, the leaves being smooth and of a flaccid pellucid green, and the stem being smooth and procumbent at the base. Small specimens of this are also much like the following species, *E. alpinum*, from which it differs in the size and form of the leaf, as well as that of the flowers and fruit being always smooth.

10. *E. alpinum*, Linn. (Fig. 627.) *Alpine Willow herb*. Stem nearly smooth, branched at the base and procumbent, with two elevated lines; leaves opposite, oblong, or oblong lanceolate, narrowed at the base, entire, or obscurely toothed, on a short footstalk, smooth, as well as the flower and fruit; stigmas club-shaped.

English Botany, t. 2001.—English Flora, vol. ii. p. 217.—Hooker, British Flora, vol. i. p. 184.—Lindley, Synopsis, p. 108.—*E. anagallidifolium*, Lam. dict. 2. p. 376.

Root fibrous, with creeping underground stems. *Stem* procumbent at the base, becoming erect, from one to four inches high, simple or branched at the base, with a few short leafy branches, smooth below, sometimes hairy above, with two, sometimes four elevated lines, leafy. *Leaves* opposite the upper ones, often alternate, smooth, oblong or oblong lanceolate, with an obtuse point, narrowed at the base into a short footstalk, the margin quite entire, or uneven and obscurely toothed, having a mid-rib and indistinct lateral veins. *Flowers* few from the axis of the upper leaves, nearly sessile, the *calyx* tube cylindrical, with four furrows, quite smooth, as well as the oblong lanceolate segments of the limb. *Petals* broadly heart-shaped, rose coloured, about half as long again as the calyx. *Stamens* on erect slender *filaments*, about as long as the *style*, bearing simple club-shaped *stigmas*. *Capsule* elevated on an elongated footstalk, smooth, obtusely four angled and furrowed, long, linear, erect, rarely reflexed. *Seeds* numerous, small, ovate, crowned with a tuft of long white silky hairs.



628

Enothera biennis.



629

Vaccinium myrtillus.



630

Vaccinium uliginosum.



631

Vaccinium vitis idaea.



632

Vaccinium oxycoccus.



633

Menziesia coerules.

Habitat.—Wet places, near springs, and the sides of rivulets; on the Highland Mountains of Scotland.

Perennial; flowering in July.

GENUS III. CENOTHE'RA.—LINN. *Evening Primrose*.

Nat. Ord. ONAGRA'RIÆ. JUSS.

GEN. CHAR. *Calyx* tubular with a reflexed four-partite deciduous limb, more or less combined. *Petals* four. *Stamens* eight. *Stigma* four lobed. *Capsule* linear or winged, of four valves, four celled, and many seeded. *Seeds* naked.—Name from οἶνος, *wine*; and ἡρᾶ, *searching or hunting*; the root of some species eaten after meals were used as incentives to wine drinking, as olives are at the present time.

1. *C. bien'nis*, Linn. (Fig. 628.) *Common Evening Primrose*. Leaves ovate lanceolate, flat, toothed; stem somewhat hairy; flowers sessile, sub-spicate; stamens equal, about as long as the corolla; capsule oblong, conical, nearly cylindrical.

English Botany, t. 1534.—English Flora, vol. ii. p. 210.—Hooker, British Flora, vol. i. p. 182.—Lindley, Synopsis, p. 109.

Root fleshy, tapering. *Stem* erect, from two to three or four feet high, simple or branched, leafy, angular, more or less rough, with tubercles, and scattered over with hairs. *Leaves* alternate, ovate, or ovate lanceolate, on short footstalks, downy, the margins irregularly toothed and waved, the mid-rib stout, with numerous slender lateral veins. *Inflorescence* terminal, sub-spicate, the flowers numerous from the axis of the upper leaves, sessile. *Calyx* with a long cylindrical tube and a reflexed *limb*, of four segments, irregularly combined together, lanceolate, with a long slender tapering point, hairy. *Corolla* yellow, of four wedge-shaped waved petals, expanding towards the evening, and exhaling a pleasant fragrance. *Stamens* of equal length, with erect awl-shaped *filaments*, shorter than the corolla. *Anthers* yellow, linear, oblong, incumbent. *Style* erect, as long as the stamens, with *stigmas*, of four spreading oblong segments. *Capsule* oblong, conical, short, obtuse, cylindrical, or with four obtuse angles and furrows, four celled, four valved, with numerous naked seeds.

Habitat.—Sandy hills near Liverpool; near Woodbridge, Suffolk; banks of the Arrow, Warwickshire; and the banks of the Don below Sheffield, Yorkshire; naturalized.

Perennial; flowering from June to September.

Cenothera is an extensive and very beautiful ornamental genus of plants, for the most part natives of America, but are easy of cultivation on our borders in a rich loamy soil, and readily propagated both by seeds and cuttings, and the delicate fragrance which many of them

exhale is more perceptible in the cool of the evening, thus adding an additional charm to the richness and beauty of their colours. The *Æ. biennis* was introduced into our gardens and extensively cultivated between two and three hundred years ago, and from thence has escaped and established itself in places favourable to its growth, and has thus become an apparently indigenous plant. The fleshy roots were formerly cultivated as a vegetable, but the introduction of the potato has superseded them: eaten raw after meals they were supposed to give a relish and desire for the drinking of wine; hence has arisen its generic name of "wine hunter," or searcher. It is found equally as common in some parts of Germany as with us, but that country has no higher claim to it than our own, that of a long naturalized species. It is also found in the northern parts of Italy, but there too it has escaped from the garden; by the Italians it is called Rapunzia and Rapunzico.

GENUS IV. VACCINIUM.—LINN. *Whortle-berry.*

Nat. Ord. VACCINIEÆ. DE CAND.

GEN. CHAR. *Calyx* of four or five teeth, or entire. *Corolla* of one piece, four or five-cleft. *Anthems* of two cells, and with two horns. *Fruit* a globose *berry*, crowned with the persistent calyx, many seeded.—Name of doubtful origin.

* *Myrtillus*. *Leaves* deciduous. *Anthems* with two awns at the back.

1. *V. Myrtillus*, Linn. (Fig. 629.) *Bilberry*, or *Black Whortle-berry*. *Leaves* ovate, deciduous, smooth, serrated; stem angular; peduncle axillary, solitary, single flowered, with a globose corolla.

English Botany, t. 456.—English Flora, vol. ii. p. 219.—Hooker, British Flora, vol. i. p. 181.—Lindley, Synopsis, p. 134.

Root woody, fibrous. *Stem* erect, about a foot high, bushy, with irregular green acutely angular branches, smooth, shining, leafy at the top. *Leaves* alternate, ovate, on a short footstalk, scarcely an inch long, the margin finely serrated, paler on the under side than above, smooth and shining, with a stout mid-rib and finely netted veins. *Flowers* solitary from the axis of the leaves, on short drooping peduncles. *Calyx* small, the margins waved, scarcely toothed. *Corolla* of one piece, globose, a bright pink, of a somewhat waxy appearance, sometimes of a yellowish green, the limb of four or five roundish short teeth. *Stamens* with short dilated *filaments*, inserted into the receptacle, and large yellow *anthers*, of two linear cells, opening by terminal pores, and having from about the middle of the back a bristle-like awn. *Style* longer than the stamens, with an obtuse *stigma*, simple, erect. *Fruit* a globose *berry*, of a dark bluish black, glaucous, crowned with the persistent calyx, around a central depression. *Seeds* small, numerous.

Habitat.—Woods and heathy places; abundant, especially in hilly and alpine or mountainous districts.

Shrub; flowering in April and May.

The roots of the Bilberry contain a considerable portion of tanning matter. The leaves and stems are also bitter and somewhat astringent, and, according to Withering, goats browse upon the plant; sheep are not fond of it; horses and cows refuse it. The ripe berries in many parts of the country are gathered and sold in the markets, and are used for making tarts, puddings, and preserves for winter use. Children are very fond of them, and in some countries they are eaten with boiled cream and sugar; the juice furnishes a purple dye, and its jelly is said to be used by the Highlanders of Scotland to mix with their whisky for strangers, who are unaccustomed to its flavour, and to disguise its strength.

2. *V. uliginosum*, Linn. (Fig. 630.) *Great Bilberry, or Bog Whortleberry*. Leaves obovate, obtuse, entire, glaucous, and reticulated, with veins on the under side, deciduous; stem round; peduncles single flowered, clustered; corolla ovate.

English Botany, t. 581.—English Flora, vol. ii. p. 220.—Hooker, British Flora, vol. i. p. 181.—Lindley, Synopsis, p. 134.

Root woody, fibrous. *Stem* erect, from one to two feet high, bushy; with round smooth spreading branches, leafy, smooth. *Leaves* alternate, obovate, obtuse, often with a small point at the end of the mid-rib, alternate, on short footstalks, quite smooth and entire, of a glaucous green, much paler beneath, with a stout mid-rib and prominent netted veins, and the margins are sometimes slightly recurved. *Flowers* mostly several together, each on a short curved simple peduncle, with a short mostly four-cleft *calyx*, and a pale pink ovate *corolla*, with a four rarely five-cleft short spreading limb. *Stamens* with short *filaments* inserted into the receptacle, the *anthers* yellow, of two linear pointed cells, opening at the apex, and each with an awn from the back. *Style* about as long as the stamens, with an obtuse *stigma*, the *fruit* a roundish black, or blue black *berry*, larger than the last species, and inferior in flavour, many seeded, the *seeds* small, finely striated.

Habitat.—Boggy places in the North of England; more frequent in the Highlands of Scotland.

Shrub; flowering in May.

This pretty little bushy shrub, a native of elevated situations, is a very useful plant, as affording a good covering for alpine birds, and also an excellent food in the fruit. It is also applied to other purposes. According to Hooker, the leaves are added to *Lycopodium alpinum* by the Icelanders, in order to produce a yellow dye for colouring woollens; and it is said that the vintners in France use the juice of the berries to colour their wines red: and Linnæus states that large quantities of the berries, when eaten, occasion slight head-ache, especially when full grown and quite ripe.

** *VITIS IDÆA*. *Leaves persistent evergreen. Anthers awnless at the back.*

3. *V. Vitis Idæa*, Linn. (Fig. 631.) *Red Whortle-berry, Cow-berry.* Leaves evergreen, obovate, obtuse, paler beneath and dotted, the margins revolute, nearly entire; flowers campanulate, in a terminal drooping raceme.

English Botany, t. 598.—English Flora, vol. ii. p. 220.—Hooker, British Flora, vol. i. p. 182.—Lindley, Synopsis, p. 134.

Root woody, creeping, with long branched fibres. *Stem* erect, round, smooth, simple, or with a few short branches at the top, leafy upwards. *Leaves* alternate, obovate, obtuse, mostly with a minute point, smooth and shining, pale and dotted beneath, with small prominent glands, the margins entire, or somewhat crenated, and more or less rolled back, the footstalk short, and mid-rib prominent, of a thick leathery texture. *Flowers* in a terminal drooping raceme, of from four to eight, of a pale pink or flesh colour, each on a short downy footstalk, from the axil of a small concave fringed bractea, the calyx with a four toothed fringed spreading limb, the corolla bell-shaped, deeply four-cleft, the segments spreading. *Stamens* with short broad filaments, hairy, as well as the base of the anthers, which are of two long linear cells, terminating in a long beak, with terminal pores for the discharge of the pollen. *Style* half as long again as the corolla, simple, with an obtuse stigma. *Fruit* a globose berry, of a fine dark red colour, acid, with an astringent bitter taste.

Habitat.—Dry and heathy places in mountainous and sub-alpine districts, especially in the North of England, Wales, and Scotland, and not uncommon in Ireland.

Shrub; flowering in May.

This small evergreen shrub has a great resemblance in its leaves to the *Box*. The berries, though acid with an unpleasant astringent bitterness, are collected in various parts of the country, especially in Derbyshire, and made into tarts, as well as boiled with sugar into a jam, or made into jelly, which is a useful remedy in colds and sore throats, as allaying the irritation of the inflamed mouth and fauces. In Sweden it is commonly used with all sorts of roast meats, and is said to be much better than currant jelly with venison.

*** *OXYCOCO*. *Leaves persistent, evergreen. Anthers awnless at the back. Corolla wheel-shaped, with reflexed segments.*

4. *V. Oxyccocos*, Linn. (Fig. 632.) *Marsh Whortle-berry, Cranberry.* Stem thread-shaped, smooth, trailing; leaves evergreen, ovate, glaucous beneath; peduncles long, naked, single flowered, terminal; corolla rotate, with oblong reflexed segments.

English Botany, t. 319.—English Flora, vol. ii. p. 221.—Hooker, British Flora, vol. i. p. 182.—*Oxycoccus palustris*, Rich.—Lindley, Synopsis, p. 134.

Root of numerous slender divided branches from the axis of the

leaves. *Stem* round, smooth, branched, trailing, slender, thread-shaped, with dark shining reddish brown bark. *Leaves* numerous, alternate, on short footstalks, ovate, or ovate acute, quite smooth, of a dark shining green, pale and glaucous beneath, entire, with the margins more or less recurved, small, persistent, evergreen. *Flowers* terminal, solitary, or somewhat clustered, the *peduncles* long, slender, naked, bearing a solitary drooping flower. *Calyx* with a short four-cleft limb, with obtuse finely fringed segments. *Corolla* wheel-shaped, in four deep oblong reflexed segments, of beautiful pink colour. *Stamens* on slender downy *filaments*, with linear two celled anthers, having a long beak bursting at the apex in a round hole. *Style* slender, longer than the stamens, with an obtuse *stigma*. *Fruit* an oblong or globose berry, at first pale green and spotted, becoming of a fine deep red, many seeded.

Habitat.—Turfy bogs among clear running water; not unfrequent in England, Scotland, and Ireland.

Shrub; flowering in June.

Cranberries are generally known; they are agreeably acid and grateful to most people, especially when preserved with sugar, or made into tarts, for which purpose in some parts of the country they are collected and sold in the markets, and there are annually imported into this country considerable quantities from Russia and Poland; but the Swedes, Smith says, have no idea of putting them to any other use than to boil silver plate to its proper whiteness, the sharp acid of the Cranberry corroding the external particles of the coppery alloy. It is the badge of the Clan Grant, and one of the most graceful and elegant little plants that adorn the boggy districts of our country, its slender branches trailing amongst the mossy beds, especially those of *Sphagnum*, and every now and then putting out its slender branched roots to supply with nutriment its elongated branches.

GENUS V. MENZIE'SIA.—SMITH. *Menziesia*.

Nat. Ord. ERI'CEÆ. JUSS.

GEN. CHAR. *Calyx* in four or five deep segments. *Corolla* ventricose, with a spreading four or five toothed limb. *Stamens* eight to ten. *Capsules* four or five celled, many seeded, four or five valved, forming the dissepiments by their inflexed margins, and bursting between them.—Named in honour of Archibald Menzies, a Scotch Botanist.

1. *M. cærulea*, Swartz. (Fig. 633.) *Scottish Menziesia*. Leaves scattered, linear, obtuse, toothed, crowded; peduncles simple, terminal, aggregate; flowers with a five-cleft limb, and ten stamens.

English Botany, t. 2469.—English Flora, vol. ii. p. 222.—Hooker,

British Flora, vol. i. p. 179.—Lyndley, Synopsis, p. 173.—*Andromeda cœrulea*, Linn.

Root woody, with slender branched fibres. *Stem* branched, woody, naked and decumbent in the lower part, crowded with leaves above, round, dark brown and rough with the scars of the old leaves, otherwise smooth. *Leaves* numerous, crowded on all sides of the stem, and spreading, linear, with an obtuse point, the margin rough, with small teeth, of a smooth dark shining green above, with a central channel, paler beneath, with a hairy mid-rib and short stout footstalk. *Flowers* mostly several, terminating the stem, aggregate, each elevated on a slender round peduncle, about two inches long, scattered over with red glandular hairs, and bearing a solitary drooping flower, large, of a beautiful pale blueish purple. *Calyx* of five lanceolate spreading segments, the *corolla* ovate, contracted at the mouth into an urn-shape, the *limb* of five short roundish teeth. *Stamens* ten, inserted into the base of the corolla, with slender awl-shaped *filaments* and ovate yellowish *anthers*. *Style* longer than the stamens, with a simple obtuse *stigma*.

Habitat.—Dry heathy moors; rare. Aviemore, Strathspey.—*Mr. Brown*, of Perth, and in the Western Isles of Shiant.—*Mr. G. Don* and *Dr. De Ramm*.

Shrub; flowering in June and July.

This pretty little plant is more common in North America than with us, and is frequently grown in our gardens, requiring the same kind of soil and treatment in its cultivation as the *Ericas*; but it is not a very free flowerer.

2. *M. polifolia*, Juss. (Fig. 634.) *Irish Menziesia*, or *St. Dabeoc's Heath*. Leaves ovate, the margins revolute, dark green and shining above, white and downy beneath; flowers in terminal leafy racemes; corolla with a four-cleft limb, and eight stamens.

English Flora, vol. ii. p. 223.—Hooker, British Flora, vol. i. p. 180.—Lyndley, Synopsis, p. 173.—*Erica Dobeoci*, Linn.—English Botany, t. 35.

β. *alba*. Flowers pure white.

Root woody, fibrous. *Stem* erect, from one to two feet high, simple, or mostly branched, leafy, clothed above with soft glandular hairs. *Leaves* numerous, alternate, or scattered, frequently in the lower part in whorls of three, spreading, ovate, entire, dark, smooth, shining green above, with a central channel, often scattered over with rather stout hairs, tipped with a small globose gland, the margins rolled back, and the under side white, from a thick covering of woolly hairs. *Flowers* in a terminal leafy raceme, numerous, drooping, on a short recurved axillary peduncle, hairy, as well as the *calyx*, which is deeply cleft into four lanceolate segments. *Corolla* about half an inch long, of a purplish red colour, ovate, contracted at the mouth, obtusely four angled, the limb of four recurved short segments. *Stamens* eight,



shorter than the corolla, on erect awl-shaped *filaments*, with long *anthers*, of two linear cells opening at the apex. *Style* simple, linear, longer than the stamens, with an obtuse *stigma*.

Habitat.—Dry mountainous heaths of Ireland; frequent in the wild district of Cunnamara, and the mountainous parts of the county of Mayo.

Shrub; flowering in July and August.

This is a beautiful and highly ornamental hardy shrub, frequently cultivated in gardens, especially the very pretty white flowered variety, which seems to have been first found by J. Kenny, Esq., in the county of Mayo, about fifteen years ago, and has since been observed in several parts of Cunnamara. It was at one time supposed that this species was peculiar to Ireland, but it is found, according to Hooker, in the Western Pyrenées, and in Anjou.

GENUS VI. ERICA.—LINN. *Heath*.

Nat. Ord. ERICACEÆ. JUSS.

GEN. CHAR. *Calyx* of four pieces. *Corolla* campanulate, ovate or ventricose, with a four toothed limb. *Capsule* four celled, four valved, the dissepiments from the middle of the valves.—Name from *εἰσχω*, to break; in allusion to the brittleness of the branches, or to its reputed virtues of breaking the stone in the bladder.

* *Anthers* with awns at the base, inclosed within the corolla.

1. *E. Tetralix*, Linn. (Fig. 635.) *Cross-leaved Heath*. *Anthers* with single awns from the base, inclosed within the ovate corolla; flowers in a terminal head; leaves three or four in a whorl, the margins reflexed, ciliated.

English Botany, t. 1014.—English Flora, vol. ii. p. 226.—Hooker British Flora, vol. i. p. 180.—Lindley, Synopsis, p. 174.

β. *alba*. Flowers white.

γ. *incana*. Leaves, branches, and calyx, clothed with dense soft short close hairs.

Root fibrous, with creeping underground stems. *Stems* erect or procumbent at the base, branched, and very leafy, round, woody, smooth below, except being rough, with the scars of the old leaves, hoary above, intermixed with stout glandular hairs. *Leaves* crowded, four in a whorl, sometimes three, spreading on short footstalks, ovate, with the margins rolled back, so that they have a linear appearance, smooth and green above, with the margins ciliated with bristles, tipped with a small gland, but not unfrequently it is clothed with a soft close woolliness, as the under side always is, and pale. *Inflorescence* a terminal umbellate head of crowded flowers, each elevated on a short woolly stalk. *Calyx* of four linear segments, downy, and ciliated with

glandular bristles, as well as the two linear *bracteas* which accompany them. *Corolla* ovate, smooth or downy, a beautiful rose colour, having a waxy appearance, sometimes they are quite white, contracted at the mouth, with a limb of four roundish reflexed teeth. *Stamens* inserted into the receptacle, inclosed within the corolla, the *filaments* simple, awl-shaped, the *anthers* of two cells, opening with a terminal pore, and having from the base at the back two simple tapering awns, nearly as long as the cells. *Style* simple, thread-shaped, as long as the corolla, with an obtuse capitate *stigma*. *Germen* roundish, hairy. *Capsule* roundish, oblong, hairy, with four furrows, four cells, four valves, and many seeded.

Habitat.—Heaths and moory ground; frequent.

Shrub; flowering in July and August.

This elegant little plant is one of the greatest ornaments to our heaths and moors, and though common, is less frequent than the following species, or *Calluna vulgaris*; its gracefully drooping heads of waxy looking flowers of a delicate rose colour, sometimes white, hang nodding in the breeze, and afford to the industrious bee a rich reward for its labour, in the nectarious food sipped from its bosom. It is, according to Hooker, the badge of the clan *Macdonald*.

2. *E. cine'rea*, Linn. (Fig. 636.) *Fine-leaved Heath*. Anthers with two serrated awns at the base, inclosed within the ovate corolla; flowers in whorled racemes; leaves short, linear, three in a whorl, smooth.

English Botany, t. 1015.—English Flora, vol. ii. p. 226.—Hooker, British Flora, vol. i. p. 180.—Lindley, Synopsis, p. 174.

Root woody, fibrous. *Stem* woody, much branched, brittle, erect, often contorted, round, smooth below, the branches clothed with a close pale woolliness. *Leaves* crowded in whorls of three, and from the axis of each is a short leafy branch, nearly sessile, quite smooth, short, linear, awl-shaped, with a furrow at the back. *Inflorescence* a terminal raceme, of numerous whorled *flowers*, on short round downy recurved peduncles, bearing one, two, or three linear *bractea* near the *calyx*, which is formed of four linear smooth segments, somewhat membranous at the base. *Corolla* rather small, ovate, of a purplish red, sometimes quite white, smooth, the *limb* of four short erect or spreading teeth. *Stamens* inclosed within the corolla, the *filaments* smooth, slender, awl-shaped. *Anthers* dark purple, of two conical cells opening at the apex, and from the base at the back are two spreading awns, as long as the cells, with the margins more or less serrated. *Style* simple, longer than the stamens, with the *stigma* obtuse, and cleft into four notches. *Capsule* roundish, oblong, smooth, marked with four furrows, four valved, four celled, and many seeded.

Habitat.—Heaths and moors; abundant.

Shrub; flowering from July to October.

Of this species it is said that the Picts made a good and wholesome liquor; but the mode of its preparation appears now to be lost, which is accounted for by Boethius from the tradition that the mode of preparing such a delightful beverage was not communicated by them to any but their own sect; and, as they were exterminated, the art was lost with them.

"Though unobtrusive all thy beauties shine,
Yet boast thou rival of the purple vine!
For once thy mantling juice was seen to laugh
In pearly cups which monarchs loved to quaff;
And frequent woke the wild inspired lay,
On Teviot's hills, beneath the Pictish sway."

Leyden.

In some parts of the isles of Scotland, it is said the tender tops are still used with malt and hops in brewing ale; it is also used together with *Culluna vulgaris* for a variety of domestic and economical purposes; Hooker says it is the badge of the Clan Macalister.

** *Anthers without awns at the base, and protruding beyond the corolla.*

3. *E. Mediterra'nea*, Linn. *Mediterranean Heath*. Anthers without awns, and as well as the style exerted; corolla narrow, urceolate; bracteas about the middle of the peduncle; calyx coloured; flowers axillary; leaves four in a whorl.

Botanical Maga. t. 471.—Hooker, British Flora, vol. i. p. 180.—Lindley, Synopsis, p. 327.

β. (Fig. 637.) Flowering branches and style shorter.

Hooker in English Botany, Supp. t. 2774.

Root woody, fibrous. *Stem* erect, from one to two feet high, much branched, rigid, and more or less waved, the younger branches pale grey coloured, the older dark brown. *Leaves* numerous, mostly disposed in irregular whorls of four, the upper ones erect, the lower spreading, linear, somewhat fleshy, about half an inch long, smooth, a dark green, flat on the upper side, rounded beneath, with a central depressed mid-rib, each on a short *petiole*. *Flowers* numerous from the axis of the upper leaves, erect, and drooping, each on a slender pink *pedicle* bearing about the middle a whorl of mostly three ovate lanceolate small *bracteas*, with hairy margins. *Calyx* of five close pressed lanceolate thin segments, nearly half as long as the corolla, smooth, pale pink. *Corolla* pale pink, of a narrow cylindrical urn-shape, with a limb of four short blunt segments. *Stamens* as long as the corolla, with slender *filaments*, dilated upwards into the *anthers*, which are of a dark pinkish brown colour, linear, bursting laterally from the apex, and without any appendages. *Style* slender, longer than the stamens, with an obtuse stigma.

Habitat.—Discovered in 1830 in boggy ground on Urrisbeg Mountain, Cunnamara, Ireland, covering a space of at least two acres—*J. T. Mackay, Esq.*

Shrub; flowering in April.

"It is not a little remarkable," observes Sir W. J. Hooker in the English Botany, Supplement, t. 2774, "that notwithstanding the limited extent of the British Islands, and the number of zealous Botanists they have produced, two of our most remarkable native plants, the most beautiful of a most highly beautiful genus, and covering the ground as they do to an extent of some acres, should, till within these few years, have remained undiscovered and unknown, save to the shepherd and the illiterate peasant of the neighbourhood." The other heath which the distinguished author here refers to is the *Erica ciliaris*, (Fig. 639.) A circumstance so remarkable as this in regard to two of our most beautiful native plants will not be passed unnoticed, especially by our young Botanical friends; it gives them the greatest encouragement to persevere in their researches, and they may be the happy discoverers of other new plants, and swell still further the list of our native Flora; for while such plants as the two here mentioned have been passed over and unnoticed, we may suppose with great probability, that there are others remaining to be discovered, though perhaps not so conspicuous as these.

4. *E. vagans*, Linn. (Fig. 638.) *Cornish Heath*. Anthers without awns, of two separate lobes, and as well as the simple style protruded beyond the deeply four-cleft campanulate corolla; calyx coloured; bractea below the middle of the peduncle; flowers axillary, numerous, crowded; leaves four in a whorl.

English Botany, t. 3.—English Flora, vol. ii. p. 227.—Hooker, British Flora, vol. i. p. 180.—Lindley, Synopsis, p. 174.

Root woody, fibrous. *Stem* erect, from one to two feet high, much branched above, round, smooth bark, but rough with the scars of the leaves, which are crowded, in whorls of from three to five, linear, with a furrow on the under side, smooth, dark green, on short stout footstalks, the margins rolled back, and sometimes fringed with very fine short hairs. *Flowers* axillary, numerous, crowded from about the middle of the branches upwards, each on a slender *peduncle*, smooth, shorter than the leaves, having several scaly fringed *bractea* below its middle, frequently only at the base. *Calyx* of four thin coloured concave pieces. *Corolla* pink or white, bell-shaped, with a deeply four-cleft limb of acute spreading segments. *Stamens* with simple slender *filaments*, longer than the corolla, the *anthers* dark red, of two separate spreading single celled conical lobes, opening at the apex. *Style* simple, slender, longer than the stamens, with an obtuse four notched *stigma*.

Habitat.—Heaths in Cornwall; abundant on Goonnely Downs, between Helston and the Lizard, and occasionally in some other of the south-western parishes of Cornwall; Furze-croft, near Enys Mylor.—Miss Warren, of Flushing.

Shrub; flowering in July and August.

This beautiful species of *Erica* was confounded by our early Botanists with *E. multiflora*, a species common in the South of Europe.

Withering, in his second edition, has named it *E. didyma*, from the shape of the anther, a character not peculiar to the species. It is readily distinguished from the other of our native species by its bell-shaped, not ovate corolla.

*** *Anthers without awns at the base, and inclosed within the corolla.*

5. *E. ciliaris*, Linn. (Fig. 639.) *Ciliated Heath*. Anthers without awns, bifid, and rough, inclosed within the corolla; style protruded; corolla ovate, inflated; leaves ovate, three or four in a whorl, ciliated with glandular hairs; flowers in terminal one sided racemes.

Hooker, British Flora, vol. i. p. 181.—English Botany, Suppl. t. 2618.—Lindley, Synopsis, p. 174.

Root woody, fibrous. Stem erect or procumbent, and rooting at the base, round, branched, leafy, downy, and scattered over with stout hairs, terminated in a small gland, from one to two feet high. Leaves scattered, and in whorls of three or four, ovate, with the margins rolled back, and ciliated with stout glandular hairs, green above, pale beneath, with a prominent mid-rib, and clothed with close pale hairs. Inflorescence a terminal whorled one sided raceme, of large reddish purple somewhat waxy looking flowers, each on a short hairy peduncle, with two or four linear bractees beneath the four-cleft calyx of linear ciliated segments. Corolla ovate, inflated, somewhat gibbous on the upper side, contracted at the mouth with a short four-cleft limb of acute teeth, sometimes downy. Stamens inclosed within the corolla, with slender simple filaments, and the anthers of two separate conical lobes, rough, with minute points, and opening on one side near the apex. Style simple, longer than the corolla, thickened towards the top, the stigma simple, obtuse. Capsule ovate, having eight furrows, four cells, with double dissepiments, formed by the inflexed margins of the valves. Seeds numerous.

Habitat.—Boggy and dry ground; Cornwall, near Truro.—*The Rev. J. S. Tozer*, of Truro, 1828. Heath at Carclew, near Penryn, and on a heath in the parish of St. Agnes, on the north coast of Cornwall.—*Sir Charles Lemon, Bart.* Furze-croft and Fir Plantations, between Perran and Carclew Mylor, Cornwall.—*Miss Warren*. Corfe Castle, Dorset.—*W. E. Trevelyan, Esq.*

Shrub; flowering from June to August.

This, our most beautiful species of *Erica*, is found also in the Southern parts of France, but is most frequent in Spain and Portugal, where we have seen it in the greatest profusion; it is, in fact, by far the most abundant species, especially in the northern parts of Portugal, growing not only in boggy but dry sandy ground near the sea, and flowering profusely. Its large racemes of beautiful waxy looking flowers of a delicate purplish pink colour, are most elegant in appearance, and far surpassing many of the species from the Cape of Good Hope.

The genus *Erica* is the most extensive in our catalogue of plants, amounting to between six and seven hundred known species, all of

which, with the exception of a few which are found in Europe, are natives of the Cape of Good Hope, and are perhaps the prettiest and most graceful of any genus. Some of them are very splendid, others remarkably curious, and collectively present the greatest conceivable variety in the shape and character of the leaves, as well as in the form and disposition of the flowers, rendering them great favourites in every collection of plants. Their successful cultivation was once thought the greatest test of the gardener's ability; but now the mode of management and propagation are so well understood, that the triumph with which the gardener presented at one time even a dwarf specimen is long passed, and he exhibits in his heath house large bushy plants, every branch and spray fringed with an abundance of flowers. *Ericas* are not possessed of any known valuable properties; some are delightfully fragrant, as the *E. odor-rosea*, *E. tenuiflora*, &c., the former having the odour of otto of roses, and the latter that of a carnation; others are more or less fragrant, but the greater part of them are altogether scentless, and have only their beauty to recommend them; they have a very remarkable property in favour of their cultivation, in not being liable to be infested with insects.

GENUS VII. CALLUNA.—SALISB. *Ling.*

Nat. Ord. ERICACEÆ. JUSS.

GEN. CHAR. *Calyx* of four coloured pieces, longer than the corolla, and accompanied with four *bractæas*, coloured like the calyx, *Corolla* campanulate, four-cleft. *Capsule* four celled, four valved. the dissepiments adhering to the axis, the valves opening at the dissepiments, and separating from them.—Named from καλλυνω, to *cleanse*, or *embellish*; either from the beauty of the plant, or the use made of it in the manufacture of brooms.

1. *C. vulgaris*, *Salisb.* (Fig. 640.) *Common Ling.* Anthers included, awned at the base.

English Flora, vol. ii. p. 225.—Hooker, British Flora, vol. i. p. 181.—Lindley, Synopsis, p. 173.—*Erica vulgaris*, Linn.—English Botany, t. 1013.

β. *pubescens*. Leaves and branches densely clothed with hairy pubescence.

E. ciliaris, Hudson, Flora Anglica. ed. 1. (not Linn.)

γ. *plena flora*. Flowers double.

Root woody, with tufts of fibrous branches. *Stem* woody, contorted repeatedly and irregularly branched, forming a tufted bush, about a foot high or more, the branches round and smooth. *Leaves* numerous, dark green, smooth, or more or less clothed with pubescence, as is the whole of the plant, sessile, with a spur-like prolongation from the



640

Calluna vulgaris.



641

Chlora perfoliata.



642

Daphne mezereum.



643

Daphne laureola.



644

Polygonum bistorta.



645

Polygonum viviparum.

base, imbricated in four rows on the young branches. *Inflorescence* terminal, leafy, one sided racemes, of numerous *flowers*, each flower on a short axillary drooping *peduncle*, the *bractea* imbricated, the outer ones green and spurred at the base, the inner coloured like the calyx, and fringed on the margin. *Calyx* of four oblong smooth coloured segments, concave, longer than the corolla, and closing over it. *Corolla* bell-shaped, deeply cut into four lanceolate segments, smooth and coloured like the calyx, of a fine deep rose colour, from which it varies to white, which is not uncommon, and sometimes they are very double, resembling small roses. *Stamens* about as long as the corolla, with short curved *filaments*, with oblong *anthers*, of two conical separate cells, united at the base, each with a short spur at the base, bursting laterally near the apex. *Style* simple, longer than the stamens, with an obtuse four notched *stigma*. *Capsule* inclosed in the persistent calyx. *Seeds* numerous, small.

Habitat.—Heaths and Moors, common everywhere; the variety *γ. plena flora* near Carclew, Cornwall.—*Miss Warren*.

Shrub; flowering from June to August.

This species, the *Ling*, together with *Erica tetralix* and *E. cinerea*, are commonly called without discrimination *Heather*; they are frequently all growing together on heaths and alpine moors, which would be otherwise barren, and where scarcely any other plants will grow; and it is not only highly ornamental in clothing them with its low thick bushes, but for two or three months in the year adorns them with a rich profusion of its delicate flowers; for

“ — On Caledonian hills sublime
Spreads its dark mantle, where the Bees delight
To seek their purest honey, flourishes
Sometimes with bell-like Amethysts, and then
Paler, and shaded like the maiden's cheek
With gradual blushes; others while as white
As rime that hangs upon the frozen spray.
Of this old Scotia's hardy mountaineers
Their rustic couches form; and there enjoy
Sleep, which beneath his velvet canopy
Luxurious Idleness implores in vain.”

Mrs. C. Smith.

Not only is the heather employed by the Highlanders to make their beds, but the walls of their cottages are made with it, intermixed with mud, as a cement; it is also their thatch for the roofs, and is twisted into ropes to make lattice work for the windows, &c.; it, with the peat which its decayed leaves and stems assist in forming, is their chief fuel, and its young tops are used to make a kind of yellow dye to tinge their home spun yarns, made from the fleece of their flocks, which, when other food is scarce, feed upon the tender shoots of the heather. It is not, however, a favourite food of cattle, but supports vast numbers of insects, and affords covering and an abundant supply

of food in the seeds to myriads of birds. From its flowers bees collect great quantities of honey, but it is darker coloured, and more bitter than other kinds. The stems and branches in many parts of the country are made into brooms, for which purpose it is cut in the autumn; and in some parts of Scotland, it is said to be the chief revenue of the Highland lairds: it is the badge of the Clan *Macdonnell*. It forms an excellent edge row to garden borders and plots, bearing clipping, as well as the box; the white, and especially the double flowered variety, is remarkably beautiful, each flower is much larger than the common, and is like a drooping cluster of delicate miniature roses. On its tender shoots and stem, the Little Dodder often establishes itself, and spreads its long thread-like stems for some distance upon them, having a remarkably wild appearance. The *Calluna vulgaris* is the only known species of the genus, and is found on heaths and moors in the sub-alpine districts of all parts of Europe. In some parts of Tuscany we have observed the flowers sometimes as large again as with us, but not otherwise different.

GENUS VIII. CHLORA.—LINN. *Yellow-wort.*

Nat. Ord. GENTIANÆ. JUSS.

GEN. CHAR. *Calyx* eight partite. *Corolla* nearly rotate, with a short tube and an eight partite limb. *Stamens* short, inserted into the orifice. *Style* with a two-cleft emarginate stigma. *Capsule* of one cell, two valved, many seeded.—Name from *χλωρος*, *pale*, or *yellowish green*; from the colour of the plant.

1. *C. perfoliata*, Linn. (Fig. 641.) *Perfoliate Yellow-wort.* Leaves of the stem triangular-ovate, united at the base, perforated, glaucous; calyx divided to the base into eight awl-shaped segments, shorter than the corolla.

English Botany, t. 60.—English Flora, vol. ii. p. 218.—Hooker, British Flora, vol. i. p. 179.—Lindley, Synopsis, p. 179.

Root of several stout branched fibres. *Stem* erect, from twelve to eighteen inches high, round, smooth, simple, leafy, glaucous, solitary, or several from the same root. *Leaves* in pairs, opposite those of the root, oblong, lanceolate, on a short footstalk, those of the stem triangular, ovate, entirely united, the whole length of the base, and perforated by the stem in the middle, of a pale very smooth glaucous green, having a mid-rib and sometimes two slender lateral veins. *Inflorescence* a terminal repeatedly forked panicle, with a solitary flower on the axis of the divarication, on a slender peduncle. *Flowers* a bright yellow, expanding only in the bright sunshine. *Calyx* of eight smooth linear segments, with a mid-rib and two obscure lateral veins. *Corolla* somewhat wheel-shaped, with a rather short mem-

branous ribbed tube, the *limb* of eight oblong lanceolate acute pieces, marked with longitudinal veins, spiral in the bud. *Stamens* shorter than the limb, inserted into the orifice of the tube, with short awl-shaped *filaments* and narrow elliptic yellow *anthers*. *Style* shorter than the stamens. *Stigmas* of two-cleft ovate oblong lobes. *Capsule* ovate, smooth, with a furrow on each side, one celled, two with lateral placenta, formed by the inflexed margins of the valves. *Seeds* very numerous, minute.

Habitat.—Limestone districts and gravelly pastures; not unfrequent in the Midland and Southern Counties of England, and about Dublin and Kilkenny, Ireland.

Perennial; flowering from July to September.

A pretty gay ornamental plant of our meadows and hilly pastures, possessing bitter tonic properties, in which circumstance, as well as some of its peculiarities of structure, it is nearly allied to the genus *Erythrea*; and like them the corolla is spiral in the bud, the tube membranous and persistent, and the limb expanding only in the bright sunshine, the explanation of which circumstance is to be sought for in the difference of the texture between the limb and the tube of the corolla, which are differently acted upon by heat, and especially by the dry or moist state of the atmosphere.

GENUS IX. DA'PHNE.—LINN. *Mezereon and Spurge
Laurel.*

Nat. Ord. THYME'LEÆ. JUSS.

GEN. CHAR. *Perianth* single, inferior, four-cleft, deciduous. *Style* short, terminal. *Fruit* a one celled single seeded *berry*.—Name *δάφνη*, *Daphne*; the Greek name of the Laurel, or Bay tree.

1. *D. Meze'reum*, Linn. (Fig. 642.) *Common Mezereon*. Flowers lateral, sessile, about three together, pubescent, appearing before the lanceolate wedge-shaped smooth leaves.

English Botany, t. 1381.—English Flora, vol. ii. p. 228.—Hooker, British Flora, vol. i. p. 184.—Lindley, Synopsis, p. 209.

Root of numerous long pliant branches. *Shrub* erect, alternately branched with smooth bark and tough pliant branches, forming a bush from three to five feet high. *Leaves* numerous, scattered, not appearing until some time after the flowers, lanceolate, wedge-shaped, on short footstalks, smooth, paler beneath, about two inches long. *Flowers* appearing early in lateral clusters, of about three together from the axis of the last year's leaves, sessile, surrounded with several ovate bractea. *Perianth* single, downy externally, especially in the lower part of the tube, the *limb* of four ovate acute spreading segments, of a crimson colour, often pale rose colour, and sometimes quite white, of

a delightful fragrance. *Stamens* on short *filaments*, with ovate yellow *anthers*, four about the middle of the tube, and four at the orifice. *Style* very short, with a capitate *stigma*, entire, depressed. *Fruit* a round *berry*, of one cell, single seeded, scarlet, sometimes orange colour.

Habitat.—Woods, rare; in the Midland and Southern Counties of England.

Shrub; flowering in March.

The common Mezereon is a favourite garden shrub, thriving well in a loamy soil, and flourishes either on the open border or beneath the drip of trees, and is one of our earliest flowering plants, its branches being frequently clothed with its highly fragrant flowers while the snow still covers the ground, and hoary rime hangs upon the shrubbery; and

“Though leafless well attired, and thick beset
With blushing wreaths, investing every spray.”

Cowper.

It is a native of all parts of Europe, and the bark, both of the stems and roots, have long been used as a medicine, having a hot pungent acrid taste, acting as a powerful stimulant to the throat and fauces, and exciting considerable irritation and inflammation when applied to the surface of the body, its activity residing in a peculiar principle obtained in a crystalline form by Vauqueline, to which he has given the name of *Daphnin*, a principle which is found to abound more or less abundantly in all the species of the genus, and on account of this active principle they have been applied to various medicinal uses, but more especially the present and following species. As a remedy for the tooth ache it has long been in use; by masticating it a considerable flow of saliva is produced, and a degree of inflammation excited, which acts as a counter-irritant. Made into a decoction it has had the reputation of being useful in chronic rheumatism, scrofulous and venereal swellings, and some affections of the skin; but it is not now relied upon in such affections, and if taken in too large a quantity produces vomiting and purging. The decoction has also been thought useful as an external stimulating wash to indolent ulcers, and in France it is still used: where also the bark is formed into an ointment, and used as a stimulating application to blistered surfaces, to keep up a continued discharge; and if alone applied to the surface of the skin in some individuals, produces a considerable serous discharge, and seems useful in the place of blisters for children, as producing less pain than the plaster of Blistering Flies. The berries possess the same property as the bark, but require great care in administering them, for Linnæus says in his *Flora Suecica* that six berries will kill a wolf, and that he once saw a girl die of excessive vomiting and hamoptysis, in consequence of taking twelve of them to cure an ague; but Pallas and Villars say that the berries are taken both in Siberia and in Dauphiny as cathartics, thirty being a dose, and that they are also given to

infants as a remedy for whooping cough. The bark of this, as well as of other species, contains a yellow dye, and is used for that purpose in some parts of the South of Europe.

2. *D. Laure'ola*, Linn. (Fig. 643.) *Spurge-Laurel*. Racemes axillary, short, of about five smooth flowers, each accompanied with an ovate bractea; leaves smooth, evergreen, lanceolate, wedge-shaped, tapering into a footstalk.

English Botany, t. 119.—English Flora, vol. ii. p. 229.—Hooker, British Flora, vol. i. p. 184.—Lindley, Synopsis, p. 209.

Root of long pliant branches. *Stem* erect, branched, from two to five feet high, round, smooth, pale brown, tough and pliant, naked below, leafy only at the top. *Leaves* crowded into a crown-like tuft, elegantly drooping on all sides, from two to four inches long, lanceolate, wedge-shaped at the base, tapering into a short footstalk, quite smooth and shining above, paler beneath, of a leathery texture, evergreen, with a stout mid-rib and slender branched veins. *Flowers* numerous, yellowish green, in short axillary racemes, of about five flowers, each on a short *peduncle*, and accompanied with a concave oblong *bractea*. *Perianth* single, funnel-shaped, smooth, of a yellowish green colour, the *tube* rather long, and marked with eight slender ribs, the *limb* of four lanceolate spreading segments. *Stamens* on very short *filaments*, with oblong yellow *anthers*, four of them inserted around the mouth of the tube, and four about its middle. *Style* short. *Stigmas* capitate, plane. *Fruit* an oblong smooth bluish black berry, of one cell and one *seed*.

Habitat.—Woods, thickets, and hedges, especially in a clay soil, but not very common; rare in Scotland. Woods about Rosslyn and Bothwell Castle.

Shrub; flowering in March.

The Spurge Laurel possesses similar properties to the common Mezereon, and is used for the same purposes. It is a valuable plant for ornamenting plantations and shrubberies, as it is an evergreen, and flourishes best under the shade of trees, and is uninjured by their drip. It is also a very useful plant to the nurseryman, as it furnishes stocks on which to graft rare and more ornamental species. The flowers, like all others of a pale green or yellowish colour, are very fragrant, especially in the cool of the evening.

Of this genus we have some very beautiful exotic species, all of which possess similar properties to those above described, and the bark of several species has been manufactured into cordage; that of *D. Bholtea* in Nepal is made into a soft kind of paper: and the inner bark of *Lagetta lintearia*, or *Lace bark tree*, a native of Jamaica, is formed of fine tough interlaced fibres in several layers, easily separated from each other, and may be pulled out into pieces of considerable size, having the appearance of a fine silk web. This curious substance

has been made into various articles of wearing apparel, and it is stated that of it Charles II. had a cravat, frill, and ruffles, presented to him by the Governor of Jamaica.

ORDER II.

TRIGYN'IA. 3 PISTILS.

GENUS X. POLY'GONUM.—LINN. *Persicaria Bistort.*

Nat. Ord. POLYGO'NEÆ. JUSS.

GEN. CHAR. *Perianth* single, inferior, in four or five deep coloured segments. *Stamens* equal in number to the segments of the perianth, or twice as many, but frequently part of them are abortive. *Styles* two or three. *Fruit* a single seeded compressed or angular nut.—Name from *πολυς*, many; and *γων*, a knee or joint; from the numerous joints in the stem.

* *BISTORTA*. *Tourneford*. *Stem* simple, with a solitary terminal spike.

1. *P. Bistorta*, Linn. (Fig. 644.) *Bistort*, or *Snakeweed*. Stem simple, bearing a solitary terminal dense spike; leaves oblong, ovate, heart-shaped at the base, waved, the upper nearly sessile, the lower on long footstalks.

English Botany, t. 509.—English Flora, vol. ii. p. 236.—Hooker, British Flora, vol. i. p. 185.—Lindley, Synopsis, p. 212.

Root with fleshy or somewhat woody creeping underground stems, large, tortuous, with numerous branched fibres. *Stem* erect, simple, slender, from one to two feet high, round, smooth, striated. *Leaves* alternate, oblong, ovate, heart-shaped at the base, the margins waved, a smooth dark green above, pale and glaucous on the under side, with a stout mid-rib and slender branched downy veins, the lower leaves on long striated footstalks, slightly winged above, from the decurrent margins of the leaves, the upper leaves sessile, or nearly so, the footstalks dilated into sheaths, enveloping the stem, and crowned with a brown membranous *stipule*. *Inflorescence* a solitary terminal dense spike, of numerous crowded pink *flowers*, each of which is elevated on a short slender peduncle, arising from the axis of one or two thin membranous *bracteas*, notched at the end, with the mid-rib prolonged into an awn. *Perianth* single, smooth, deeply cleft into five rounded segments. *Stamens* eight, with slender *filaments*, longer than the perianth and small oval *anthers*. *Styles* three, as long as the stamens, filiform, with a minute obtuse *stigma*. *Fruit* a single seeded triangular smooth black nut.

Habitat.—Moist meadows and pastures; not unfrequent in England, Scotland, and Ireland.

Perennial; flowering in June and July.

Bistort is found in most parts of Europe. The young shoots in some parts of England are called "Easter-giant," and formerly entered into the list of herbs used in the North of England for making "herb puddings," and are still used by the country people as vegetables for the table. The root is astringent, with an austere taste; it contains a large portion of tannin and gallic acid, (on which account it has been used as a substitute for oak bark), and to which it owes its reputation as an astringent and tonic medicine; but since the introduction of Peruvian bark it has been neglected. The roots also contain a considerable portion of starchy matter; and, after the extraction of the astringent and bitter parts, it is said to be formed into bread in some parts of Iceland and Russia: and the *P. Sibericum* possessing similar properties is used for the same purposes.

2. *P. viviparum*, Linn. (Fig. 645.) *Viviparous Alpine Bistort*. Stem simple, bearing a solitary terminal spike; leaves lanceolate, the margins with numerous veins, and rolled back, the upper sessile, the lower on long footstalks, oblong, lanceolate.

English Botany, t. 669.—English Flora, vol. ii. p. 237.—Hooker, British Flora, vol. i. p. 185.—Lindley, Synopsis, p. 212.

Root with fleshy somewhat creeping underground stems, and branched fibres. *Stem* erect, simple, from two to six inches high, round, smooth, striated. *Leaves* alternate, linear, lanceolate or oblong lanceolate, quite smooth, dark green above, paler and glaucous beneath, with a stout mid-rib and fine reticulated veins, very numerous and prominent on the margin, which is more or less rolled back, the lower leaves on slender footstalks, oblong lanceolate, obtuse or heart-shaped at the base, the upper leaves lanceolate or linear lanceolate, the footstalk dilated into a sheath, crowned with a loose thin brown membranous stipule. *Inflorescence* a long cylindrical terminal spike, of numerous crowded flowers, of a pale pink colour, each elevated on a slender peduncle, arising from the axis of one or two ovate aristate thin pale brown membranous bractees, the lower part of the spike bearing small sessile ovate bulbs, which, when they fall to the ground, put out roots and leaves, and sometimes while on the plant put out two short leaves. *Perianth* single, smooth, deeply divided into five obtuse segments. *Stamens* eight, longer than the perianth, with slender filaments and small ovate dark coloured anthers. *Style* three, simple, as long as the stamens, with small obtuse stigmas, the germen triangular, mostly abortive.

Habitat.—Mountain pastures in the North of England and the Highlands of England.

Perennial; flowering in June and July.

This species is possessed of qualities similar to the last, but is not applied to any particular use. It is remarkable, like many other of our alpine species of plants, as forming bulbs in the place of capsules and seeds, a provision which seems wisely ordained to secure the pro-

pagation of its species against the contingencies of the circumstances of its place of growth.

**** PERSICARIA.** *Tournef.* Stem branched, each branch terminated with a spike of flowers. Style divided to the middle or base. Stigmas large, capitate.

1. *P. amphibium*, Linn. (Fig. 646.) *Amphibious Persicaria.* Spike oblong-ovate, dense, cylindrical; flowers pentandrous; styles two, united half way up; leaves petiolated, oblong, lanceolate, rough on the margins; root creeping.

English Botany, t. 436.—English Flora, vol. ii. p. 232.—Hooker, British Flora, vol. i. p. 186.—Lindley, Synopsis, p. 211.

α. aquaticum. Leaves floating, broadly oblong lanceolate, quite smooth, on long petioles.

P. amphibium. α. natans, Mœnch.

β. terrestre, (Fig. 647.) Stem erect; leaves lanceolate, on short petioles; the whole plant rough, with short close pressed rigid hairs.

Root in whorls of branched fibres, at various intervals on long cylindrical creeping underground stems, putting out leaves and stems from the joints, elongated and flexuous. Stem round, striated, scarcely branched in water, more frequently so when grown upon the land, smooth or rough, with bristly points. Leaves alternate, arising from a sheathing base, terminated in a thin membranous *stipule*, fringed or torn, elevated on a footstalk of various lengths, sometimes in *β. terrestre* it is very short, and not unfrequently in *α. aquaticum* it is three or four inches long, bearing elliptic oblong lanceolate leaves, more or less heart-shaped at the base, quite smooth, as is the whole plant, green and scarcely paler on the under side, with a stout mid-rib and very numerous slender lateral netted veins; but in *β. terrestre* the leaves are lanceolate, narrow, often with a tapering point, dark green above, pale beneath, and rough all over, as is the rest of the plant, with short close pressed bristly points. Inflorescence a terminal spike of numerous crowded flowers, on short footstalks, into an ovate or ovate oblong cylindrical shape, of a pale pink or rose colour. Bractea of ovate pointed membranous scales. Perianth deeply cleft into five oblong obtuse segments. Stamens five, on slender filaments, mostly as long as the perianth, the anthers small, roundish, of a dark colour. Styles longer than the stamens, slender, united about half way up, and bearing rather large fleshy capitate or globose stigmas. Fruit an ovate compressed nut.

Habitat.—Lakes, rivers, ponds, and margins of ditches; frequent. *β.* banks and meadows.

Perennial; flowering from July to August.

This is an extremely variable plant, from the circumstance of its being capable of growing both in water and on land, and from the change which takes place in its appearance under these two different



646 *Polygonum amphibium*. v. *aquaticum*.



647 *Polygonum amphibium*. v. *terrestre*.



648

Polygonum
lapathifolium.



649

Polygonum lapathi-
folium. v. *rubrum*.



650 *Polygonum lithifolium*. v. *maculatum*



651

Polygonum persicaria.

conditions, is apt to confuse the student in determining to what species it belongs. It is, when growing in water, a pretty showy plant, its spikes of pink flowers continuing a long time in bloom; but when it has established itself upon land, either from the circumstance of drains, &c. being cleared out, or from lands being drained, it has a very different aspect, and becomes a rough erect plant, being in such situations a very troublesome weed, extremely difficult of extirpation, its long underground stems taking root at every joint, and each joint is capable of producing a separate plant, which puts out an abundance of others, and thus the plant is continued, although it may not produce a single seed. The roots, which bear some resemblance to Sarsaparilla, are reported by Coste and Willemet to possess the same properties, and to be used as such in Nancy and Lorraine, even in preference.

4. *P. lapathifolium*, Linn. (Fig. 648.) *Pale-flowered Persicaria*. Spikes oblong, cylindrical, dense, erect; flowers hexandrous, rough, like the peduncles, with glands; styles two, distinct; leaves ovate lanceolate, on short petioles; stipules smooth or woolly, the margin short, and sparingly ciliated.

English Botany, t. 1382.—English Flora, vol. ii. p. 234.—Hooker, British Flora, vol. i. p. 186.—Lindley, Synopsis, p. 212.

α. Leaves green, smooth, thickly scattered over with glands on the under side.

β. *rubrum*, (Fig. 649.) Stems and flowers red. *β*. Curtis Lond. under. t. 25.

γ. *maculatum*, (Fig. 650.) Stem spotted with red. *γ*. Curtis Lond. t. 25.

δ. *tomentosum*. Leaves hoary beneath. *δ*. Curtis Lond. under. t. 25.—*P. incanum*, Schm. boh. n. 391.

P. tomentosum. Schrank. Caier. fl. 1. p. 669.

ε. *album*. Leaves hoary above, woolly beneath.

Root fibrous. Stem erect or decumbent at the base, frequently with the joints much swelled, branched and leafy, round, smooth, striated. Leaves ovate-lanceolate, or lanceolate, entire or waved, tapering into rough short footstalks, channeled above, the base dilated into a sheath, crowned with a membranous stipule, and is smooth or scattered over with glands, or woolly, and the margin with a few short ciliated hairs, the under side of the leaf has a stout mid-rib and branched lateral veins, paler than the upper side, smooth, and studded over with small glands, or more or less clothed with a soft pale woolliness, as is the upper side also, and the margin is smooth or rough, with short close pressed bristles; sometimes the upper side is marked with a dark lunate spot. Inflorescence terminating the stem and branches in erect oblong crowded cylindrical spikes of either greenish or reddish flowers, the peduncles and mostly the perianth rough, with small globose glands. Perianth cut into five oblong segments, veiny. Stamens six, shorter than the perianth, with simple filaments and small ovate anthers.

Styles two, as long as the stamens, bearing globose fleshy *stigmas*. *Fruit* a smooth brownish compressed nut, crowned with the base of the styles, the sides hollowed out.

Habitat.—Waste and cultivated ground, dunghills, &c.; common.

Annual; flowering from July to September.

This is an extremely variable species, as will be seen by the varieties most commonly observed pointed out above; it is, though so variable, readily distinguished by the separate styles and the rough glandular peduncles and flowers. The seeds are very abundant, and afford food to numbers of birds.

5. *P. Persicaria*, Linn. (Fig. 651.) *Spotted Persicaria*. Spikes oblong, cylindrical, dense, erect; flowers hexandrious, smooth, as well as the peduncles; styles two, united half way up; leaves lanceolate or ovate lanceolate, on short petioles; stipules hairy, the margin ciliated.

English Botany, t. 756.—English Flora, vol. ii. p. 233.—Hooker, British Flora, vol. ii. p. 186.—Lindley, Synopsis, p. 211.

β. *incanum*, Meisner. Leaves hoary beneath, flowers pale. *P. incanum*, Willd.

γ. *argentea*. Leaves hoary on both sides. "Pet. H. Brit. t. 3. f. 9."

Root fibrous. *Stem* erect or decumbent at the base, branched and leafy, round, smooth. *Leaves* ovate lanceolate or lanceolate, entire or waved, tapering into a short channeled footstalk, shining green above, and often marked with a dark lunate spot about the middle, paler, sometimes glaucous beneath, with a stout mid-rib and numerous lateral branched veins, smooth or rough, with bristle points, or pale, with hoary down, as well as the upper side, the sheaths of the footstalks short, striated, hairy, crowned with a thin membranous *stipule*, and fringed with long ciliated hairs. *Inflorescence* dense, oblong, or elongated, cylindrical, erect, or slightly drooping spikes of numerous greenish white or reddish *flowers*, terminal and axillary, quite smooth, as well as the peduncles. *Perianth* cut into five roundish oblong veiny segments. *Stamens* six, shorter than the perianth, the *filaments* simple, and the *anthers* small, oval. *Styles* longer than the stamens, two, sometimes three united half way up, the *stigmas* globose, fleshy. *Fruit* smooth, brown, compressed, or when there are three styles it is triangular, with obtuse angles, crowned with the base of the styles.

Habitat.—Waste and cultivated grounds, dunghills, and wet places; frequent.

Annual; flowering from July to September.

This, like the former species, is very variable in its appearance; but with the above characters readily distinguished.

6. *P. mite*, Schrank. (Fig. 652.) *Slender Persicaria*. Spike slender, lax, filiform, pendulous; flowers hexandrious, smooth, as well as the peduncles; styles two, united half way up; leaves lanceolate or ovate



652

Polygonum mite.



653

Polygonum hydropiper



654

Polygonum minus.



655

Polygonum aviculare.



656

Polygonum dubium



657

Polygonum maritimum.

lanceolate, petiolated; stipules hairy, the margins ciliated with long hairs.

Meyer in Chlor. Hanov. p. 475.—Koch. Flor. Germ. Helv. p. 618.—*P. laxiflorum*, Weih. bot. ztg. p. 746.—De Cand. Flora Franciaise, vol. iii. p. 55.

Root fibrous. *Stem* erect, from one to two feet high, branched from the base, round, smooth, enlarged about the joints. *Leaves* alternate, lanceolate or ovate lanceolate, entire, tapering into a short smooth channeled footstalk, a palish green, somewhat glaucous beneath, quite smooth, or the margins and mid-rib on the under side rough, with a few hairs, sheaths of the footstalk short, scattered over with hairs, and crowned with a membranous *stipule*, fringed with a few long ciliated hairs. *Inflorescence* of slender filiform pendulous terminal and lateral spikes, of lax pink or whitish green *flowers*, quite smooth, as well as the peduncles, each having at its base one or two pale membranous ovate ciliated *bracteas*, the *perianth* of four deep oblong smooth segments, the two inner ones shorter than the other two. *Stamens* six, shorter than the perianth, with simple *filaments*, bearing yellow ovate *anthers*, the *styles* longer than the stamens, united half way up. *Fruit* a small pale roundish ovate *nut*, somewhat compressed, or of three obtuse angles.

Habitat.—Damp boggy ground, near Lincoln.

Annual; flowering in July and August.

It is with much pleasure that we are enabled to add another new species to the list of our Flora. The slender *Persicaria* is nearly allied to *P. Persicaria* in the habit and general appearance of the plant, but is at once distinguished from that species by its slender pendulous lax spikes of numerous but not crowded flowers; and from *P. Hydro'piper* it is readily known not only by its spikes not being interrupted with the flowers being placed at a distance, but they are quite smooth, and not scattered over with glands, as are those of *P. Hydro'piper*.

Our specimens were collected in the summer of 1834 in boggy meadows, on the right hand side of the river opposite the Lincoln race course, and we have no doubt it will be found in other parts of the country in similar situations.

The synonyms above quoted are doubtless those of our plant, and probably others may be added.

7. *P. Hydro'piper*, Linn. (Fig. 653.) *Biting Persicaria*. Spikes slender, lax, filiform, pendulous, interrupted; flowers hexandrous, rough, with globose glands; styles two, united half way up; leaves lanceolate, waved, and petiolated; stipules nearly smooth, the margin ciliated with short hairs.

English Botany, t. 989.—English Flora, vol. ii. p. 235.—Hooker, British Flora, vol. i. p. 186.—Lindley, Synopsis, p. 212.

Root fibrous. *Stem* erect, from one to three feet high, round, smooth, shining, of a reddish colour, branched from the base, some-

times simple, and mostly swollen at the joints. *Leaves* alternate, lanceolate or ovate lanceolate, smooth and shining, the margins waved, mostly rough, with a few short bristles. *Inflorescence* slender, terminal, and axillary pendulous spikes of distant nearly sessile *flowers*, of a greenish white or reddish colour, from the axis of smooth sheathing scarcely ciliated *bractea*. *Perianth* ovate, cleft about half way down into four obtuse segments, and rough, with small pellucid globose glands, rarely smooth, and sometimes five-cleft. *Stamens* shorter than the perianth, with simple *filaments*, and yellow ovate *anthers*, the *styles* longer than the stamens, united half way up, the *stigmas* globose, fleshy. *Fruit* ovate, compressed, as large as the perianth, a dark reddish black, pointed with the persistent base of the style, and rough with minute dots.

Habitat.—Ditches, the banks of streams and watery places; common everywhere.

Annual; flowering in August and September.

Biting Persicaria, or Water Pepper, is a hot acrid plant, producing, when bruised and applied to the skin, inflammation and blisters. Its juice, which has a hot acrid taste, resides in the small glands; these are more or less abundantly scattered over the whole plant, and the seeds are so pungent as to be used as a substitute for pepper, as we are informed by Bulliard, in some of the provinces of France. The juice has been recommended as possessing aperient and diuretic virtues, and to be useful in scurvy and affections of the kidneys.

8. *P. mi'nus*, Huds. (Fig. 654.) *Small-creeping Persicaria*. Spike slender, lax, erect, interrupted; flowers pentandrous, smooth; styles united; leaves linear, lanceolate, very shortly petiolated; stipules nearly smooth, the margin ciliated, with numerous long hairs.

English Botany, t. 1043.—English Flora, vol. ii. p. 235.—Hooker, British Flora, vol. i. p. 187.—Lindley, Synopsis, p. 212.

Root of whorled fibres, and creeping underground stems. *Stem* erect, or curved at the base, and rooting from the lower joints, branched from the base, round, smooth, and swelled at the joints, mostly tinged of a pinkish colour. *Leaves* narrow, linear, lanceolate, plane, gradually tapering to the point, sessile, or with a very short footstalk, the mid-rib slender, with scarcely any lateral veins, smooth, except a few rough hairs on the margins. *Inflorescence* terminal and lateral, spikes slender, filiform, erect, or slightly drooping, smooth, of a few distant flowers, of a greenish white or pink colour. *Perianth* of five oblong segments, deeply cleft, smooth from the base, of a sheathing bractea, smooth and ribbed, or scattered over with a few close pressed hairs, the margin copiously ciliated with long hairs. *Stamens* five, shorter than the perianth, with simple *filaments*, the *anthers* ovate, yellow. *Styles* entirely united, bearing two or three capitate *stigmas*, globose, fleshy. *Fruit* as long as the perianth, ovate, compressed, or triangular, black.

Habitat.—Gravelly watery places; about London, Norwich, in Worcestershire, Cheshire, and Lancashire; near Forfar, Scotland; near Cork, on the shore of Ballyowan Lake, and Castle Blaney Lake, near Churchhill, side of the Baun, below Coleraine, Ireland.

Annual; flowering in September.

Nearly allied to *P. Hydropiper*, but is of more slender habit, with creeping underground stems, narrower leaves, and undivided styles.

*** AVICULARE. Meisn. *Flowers in axillary fascicles, or formed into leafy interrupted spikes at the end of the branches. Styles three, very short, and stigmas very small.*

9. *P. aviculare*, Linn. (Fig. 655.) *Knot grass*. Flowers axillary; leaves elliptic-lanceolate, rough on the margins, flat; stipules short, six ribbed, bifid, at length much divided; stem herbaceous, much branched; fruit shorter than the perianth, striated, with raised points; root annual.

English Botany, t. 1252.—English Flora, vol. ii. p. 238.—Hooker, British Flora, vol. i. p. 185.—Lindley, Synopsis, p. 212.

Root stout, twisted, fibrous, somewhat woody, branched. *Stems* mostly several and prostrate, rarely erect, round, smooth, striated, with numerous joints, from one and half to two inches apart, leafy and branched from almost every joint, very variable in length and luxuriance, flexuous, smooth and shining, or glaucous, often of a purplish colour. *Leaves* alternate, flat, with a rough somewhat crenated margin, elevated on a short footstalk, the mid-rib and lateral veins slender, green above, and glaucous beneath, or glaucous on both sides, smooth, elliptic-lanceolate, obtuse, or acutely pointed, very variable in width and length, rarely more than an inch long. *Stipules* at the base of the leaves, at first tubular, and cleft into two lanceolate segments, brown, with six elevated ribs at the base, the margin broad, pale, thin, membranous, becoming much torn into very narrow shreds. *Inflorescence* axillary clusters, of from two to four *flowers*, small, white, tinged with pink or green, sessile, and elevated on short slender simple stalks. *Perianth* divided about half way down into four or five oblong obtuse segments. *Stamens* eight or ten, the *filaments* about half as long as the perianth, dilated at the base, the *anthers* yellow, roundish, flat. *Styles* short, three, spreading, with small obtuse *stigmas*. *Fruit* shorter than the perianth, acutely triangular, pointed with the base of the styles, broad, an opaque brownish black colour, rough, with close lines of elevated points, closely enveloped in the persistent perianth.

Habitat.—Waste places, road sides, &c.; very common.

Annual; flowering all summer.

This is an extremely common and variable plant in the size and shape of its leaves, from the circumstance of its growing in such various situations; and like all other of our common plants it is most useful not only in clothing waste places, and fringing the road sides

with its slender stems and copious leaves, but its herbage is eaten with a relish by all cattle, and its abundant seeds abounding in nutriment, afford a large supply of food to small birds. And according to Thunberg, a dye is prepared, from the plant resembling in colour the indigo, a property which might be found of very considerable value in our own country.

10. *P. du'bium*. (Fig. 656.) *Dubious Knot-grass*. Flowers axillary; leaves glaucous, elliptic-lanceolate, rough on the margins, flat; stipules very short, six ribbed, bifid, shortly much divided; stem herbaceous, rigid, wiry, much branched; fruit longer than the perianth, smooth and shining; root annual.

Root stout, long, twisted, fibrous, somewhat woody, branched. *Stems* several from the same root, glaucous, angular, and strongly striated, the joints numerous, from one and half to two inches apart, leafy and branched, prostrate and spreading, hard and wiry. *Leaves* alternate, elliptic-lanceolate, flat, with a rough somewhat crenated margin, tapering at the base into a short footstalk, obtuse or acute at the point, the mid-rib and lateral veins slender. *Stipules* at the base of the leaves at first tubular, and cleft into two lanceolate segments, greenish brown at the base, the margin pale, thin, membranous, very shortly much torn into narrow spreading segments, the base with six prominent stout ribs, rarely any slender intermediate ones. *Inflorescence* axillary clusters, of from one to three flowers, sessile, and elevated on short slender simple stalks. *Perianth* of four or five oblong acute segments, divided nearly to the base, each with an acute mid-rib, green at the base, the margin white or pink. *Stamens* scarcely half as long as the perianth, the *filaments* dilated at the base into an ovate form, above awl-shaped. *Anthems* small, ovate, yellow. *Styles* very short, the *stigmas* small, obtuse. *Fruit* about half as long again as the perianth, ovate, acute, pointed with the base of the styles, acutely triangular, quite smooth and shining, of a chesnut brown colour, loosely enveloped in the persistent perianth.

Habitat.—Waste places near the sea; Looe Bar, Cornwall.

Annual; flowering during the summer months.

The only specimens we have of this plant are from the station above given; its habit is that of *P. aviculare*, but its stems are hard, wiry, rigid, and rough, with the elevated stria. The stipules are shorter, and torn into numerous narrow segments almost before the flowers are expanded; the filaments are dilated into a broad ovate form at the base, in which characters it differs from *P. aviculare*, but more especially in the size, form, colour, and surface of the nuts, which are only loosely enveloped, not closely invested with the persistent perianth, as that of *P. aviculare*. The similarity of the nuts to the following species seems to connect them with it, while the flat leaves and six ribbed stipules

connect it with *P. aviculare*, on account of which circumstances we have selected the name of *dubium*.

11. *P. maritimum*. (Fig. 657.) *Intermediate Knot-grass*. Flowers axillary; leaves glaucous, elliptic-lanceolate, rough on the margins, and rolled back; stipules large, about twelve ribbed, bifid, at length much divided; stem herbaceous, with numerous short joints, much branched; fruit longer than the perianth, smooth and shining; root annual.

P. marinum, Raii. Syn. 147. (excluding all the synonyms).—*P. aviculare*. s.—English Flora, vol. ii. p. 238.—Hooker, British Flora, vol. i. p. 185.

Roots of long twisted fibrous branches, somewhat woody. *Stems* with numerous long straggling procumbent branches, round, numerous striated, glaucous, the joints numerous, about half an inch apart, leafy to the end. *Leaves* elliptic-lanceolate, the margins rough, and strongly rolled back, of a glaucous green, tapering at the base into a footstalk, the under side rather paler than the upper, with a prominent mid-rib and lateral veins, about an inch long, with an acute or obtuse point. *Stipules* large, often half an inch long, tubular, cleft into two oblong lanceolate segments, at length much divided, the base a bright chestnut brown, twelve ribbed, and often with intermediate ones, prominent, and rather rough; above it is pale, very thin, membranous. *Inflorescence* axillary clusters, of about four flowers, each elevated on a rather long slender simple stalk, green at the base, white or pink on the margins. *Perianth* larger than either of the two above species, cleft about half way down into five, rarely four, roundish or ovate obtuse segments, each with a rather stout mid-rib. *Stamens* scarcely half as long as the perianth. *Filaments* dilated in the lower half into a lanceolate form, the upper half awl-shaped. *Anthers* roundish, flat, yellow. *Styles* very short, with small obtuse stigmas. *Fruit* ovate-lanceolate, quite smooth and shining, of a chestnut brown colour, acutely triangular, longer than the perianth, the point crowned with the base of the styles, the base enveloped in the loose persistent perianth.

Habitat.—Near the sea; Looe Bar, and other parts of the Cornish coast, since the time of Ray.—C. A. Johns, Esq. Sea shore, Isle of Arran, and other places about the mouth of the Clyde, Sandymount, and other places near Dublin.—Mr. T. J. Mackay.

Annual; flowering during the summer months.

This species is essentially distinguished from either of the above by its large twelve ribbed stipules, its revolute leaves, and its numerous short jointed stems; but it is allied to *P. dubium*, by the size, colour, and surface of the nuts. From *P. maritimum* of Linn. it differs in being an annual, not perennial, as is that species, which is shrubby, and with larger stipules than those of our plant.

**** HELCINE. *De Cand. Flowers in axillary fascicles. Style single, from one to three lobed stigmas.*

12. *P. Convolvulus*, Linn. (Fig. 658.) *Climbing Buck-wheat.* Stem twining, angulato-striated; leaves cordato-sagittate, the three inner segments of the perianth obtusely keeled; nuts triangular, opaque, black.

English Botany, t. 941.—English Flora, vol. ii. p. 239.—Hooker, British Flora, vol. i. p. 186.—Lindley, Synopsis, p. 212.

Root small, tapering. *Stem* climbing, much branched, twining itself around other plants near it, somewhat angular from the numerous prominent stria, and roughish, of a dull green, leafy, from two to five or six feet long. *Leaves* alternate, heart-shaped, with the lobes at the base pointed in an arrow-shaped manner, the margin mostly waved and roughish, a dull green above, paler beneath and roughish, with a mid-rib and branched lateral veins, the footstalks rather long, striated, and channeled above, having an uneven somewhat membranous stipule at the base. *Inflorescence* axillary clusters, of about four flowers; each on a short stalk, the perianth cleft half way down into six ovate concave segments, of a palish green colour, the three outer ones larger, with a more or less winged keel, the three inner ones with an obtuse keel. *Stamens* eight, sometimes only six, the filaments simple, awl-shaped, about half as long as the perianth, the anthers small, yellow, roundish. *Style* very short, with a three-cleft stigma. *Fruit* an acutely triangular ovate nut, smooth, of an opaque black colour, as long as the perianth, and enveloped in it.

Habitat.—Corn fields, gardens, &c.; frequent.

Annual; flowering from June to September.

This in many parts of the country, especially in sandy districts, is a very troublesome weed amongst corn. It produces a great number of seeds, which are the food of many birds, possessing considerable nutritive properties, though much less than the following species.

***** FAGOPYRUM. *Tournef. Flowers racemose, the racemes paniculated, or corymbose. Styles three, with thickened capitate stigmas.*

13. *P. Fagopyrum*, Linn. (Fig. 659.) *Buck-wheat.* Stem nearly erect, without prickles; flowers in simple axillary racemes, and terminal corymbose clusters; leaves cordato-sagittate; nuts triangular, with even angles.

English Botany, t. 1044.—English Flora, vol. ii. p. 239.—Hooker, British Flora, vol. i. p. 186.—Lindley, Synopsis, p. 212.

Root tapering, with fibrous branches. *Stem* erect, about a foot high, succulent, branched, somewhat zig-zag, leafy, smooth, except a hairy line on one side, and slightly striated. *Leaves* smooth, dark green, paler on the under side, with a mid-rib and branched lateral veins, the upper ones nearly sessile, the lower on channeled footstalks, with short



658 *Polygonum convolvulus.*



659 *Polygonum fagopyrum.*



660 *Paris quadrifolia.*



661 *Adoxa moschatellina.*



662 *Elatine hexandra.*



663 *Elatine hydropiper.*

scaly stipules, heart-shaped, with an acuminate point, the lobes at the base being rounded, the upper ones arrow-shaped, (the lobes being pointed). *Inflorescence* in axillary racemes of numerous flowers, and the stem terminated with the racemes, disposed in a somewhat corymbose manner, the *perianth* half-cleft into five oblong acute segments, greenish white, tipped with pink. *Stamens* eight, five, on awl-shaped filaments, nearly as long as the perianth, and three with very short filaments, having round yellow fleshy glands between them at the base. *Anthers* of two roundish separate lobes. *Styles* three, spreading, the *stigmas* thickened into a capitate or club-shaped form. *Fruit* a rather large triangular brown nut, with even angles.

Habitat.—Plantations, dunghills, waste and other places, introduced by cultivation.

Annual; flowering from July to August.

The Buck-wheat perhaps ought not to be introduced into our Flora; but as by cultivation it has become naturalized, and is commonly enough found as a wild plant, we have given it a place.

Buck-wheat, for the purposes of cultivation, is valuable with us only as a plant that will grow in the poorest soil, and which on coming to perfection produces an abundance of seeds; but they do not contain so great a quantity of nutritive matter as to be worth cultivating as a bread corn. It is, however, excellent food for game and poultry, and for this purpose it is sown in game preserves, waste places, plantations, &c.; but in China and various countries of the East, it is cultivated as a bread corn, and is used in France, Germany, and Poland, for various domestic purposes; but in England it is now scarcely ever used. The green plant is a good food for sheep and cattle, and the flowers a favourite resort of bees. Besides this, many other allied species are used as food in various parts of the Eastern countries, such as *P. Tartaricum*, *P. marginatum*, &c.

ORDER III.

TETRAGYN'IA. 4 PISTILS.

GENUS XI. PA'RIS.—LINN. *Herb Paris*.

Nat. Ord. SMILA'CEÆ. BROWN.

GEN. CHAR. *Calyx* of four pieces. *Petals* four. *Stamens* with the *anthers* of two cells, one on each side of the filament. *Styles* four, with simple stigmas. *Fruit* a berry, of four cells, each cell from four to eight seeded.—Name thought to be derived from *par, paris, equal*; in allusion to the regularity in the divisions of the various parts of the plant.

1. *P. quadrifolia*, Linn. (Fig. 660.) *Common Herb-Paris*. Leaves ovate, about four in a whorl; calyx of four linear lanceolate segments; petals four, narrower.

English Botany, t. 7.—English Flora, vol. ii. p. 241.—Hooker, British Flora, vol. i. p. 187.—Lindley, Synopsis, p. 271.

Roots fibrous, with creeping underground stems, somewhat woody. *Stem* erect, from four to twelve inches high, round, smooth, naked, except at the top, where it is crowned with a whorl of four leaves, sometimes five, rarely six, ovate or elliptic, with an acute point, the base more or less tapered into a short footstalk, having three nearly equal ribs and slender branched veins, smooth, of a dull green, paler beneath. *Flowers* solitary, on a simple angular erect *peduncle*, the *calyx* of four linear lanceolate spreading segments, of a pale green colour, quite smooth, with three principal ribs and numerous slender lateral ones. *Petals* four, much narrower, linear, greenish, yellow, shorter than the calyx. *Stamens* eight, erect, with awl-shaped *filaments*, shorter than the petals. *Anthers* of two linear lateral cells on the sides of the filament, which rises above them in a tapering point. *Styles* four, awl-shaped, shorter than the stamens. *Stigmas* simple. *Fruit* a purplish black berry, somewhat globose, obtusely four angled, compressed, four celled, each cell from four to eight seeded, attached in two rows to a central receptacle.

Habitat.—Shady woods in various parts of England, Scotland, and Ross Island, Killarney, Ireland.

Perennial; flowering in May and June.

The leaves and berries of Paris are possessed of narcotic properties, and have been exhibited, it is said, with some success in the cure of whooping cough; great caution, however, is necessary in its use, as convulsions and death are caused by an over dose: and the strength of the plant is very various, according to the situation of its growth, or the dryness or dampness of the season. The root is spoken of by Linnæus as possessing emetic properties, but to produce the same requires twice the quantity as is given of *Ipecacuanha*.

GENUS XII. ADOXA.—LINN. *Moschatell*.

Nat. Ord. AZALIA'CEÆ. JUSS.

GEN. CHAR. *Calyx* half, inferior, two or three-cleft. *Corolla* rotate, with a very short tube, and a four or five parted limb. *Stamens* eight or ten. *Anthers* terminal, single celled. *Styles* four or five, with obtuse *stigmas*. *Fruit* a berry, surrounded by the persistent calyx, and crowned by the apex of the styles, four or five celled.—Name from α, particle of negation, and δόξα, splendour; from the humble insignificant appearance of this little flower.

1. *A. moschatell'ina*, Linn. (Fig. 661.) *Tuberous Moschatell.*

English Botany, t. 453.—English Flora, vol. ii. p. 241.—Hooker, British Flora, vol. i. p. 187.—Lindley, Synopsis, p. 67.

This is the only known species of the genus. The root is formed of several fleshy concave imbricated scales, from the base of which arise slender branched fibrous roots, and slender creeping underground stems, forming at various intervals scaly tubers. Stem simple, solitary, erect, angular, from three to four inches high, bearing above the middle a pair of opposite leaves, on short footstalks, three-cleft, and lobed. Leaves two or three from the base of the stem, on long slender footstalks, tri-ternate, lobed, and cut smooth, as is the whole plant, and of a pale glaucous green. Inflorescence a globose terminal head of fine flowers, on a slender erect peduncle, the flowers pale green, the four lateral ones having the calyx, three, sometimes four or five cleft, and the corolla with a five-partite limb, the terminal flower has the calyx, two rarely three-cleft, and the corolla with a four-partite limb. Stamens with short stout filaments, united in pairs at the base, and inserted into a fleshy ring round the germen. Anthers terminal, of one cell, the lateral flowers having ten stamens, and the terminal one eight. Styles simple, with a small obtuse stigma, the lateral flowers having five, and the terminal one four. Fruit surrounded about the middle with the persistent calyx, green, of four or five cells.

Habitat.—Woods, hedges, and shady places; frequent.

Perennial; flowering in April and May.

This little plant of modest appearance is a native of all parts of Europe and Siberia, growing equally luxuriant on our plains, and upon the tops of the highland mountains of Scotland. The flowers, when the dew is upon them early in the morning or evening, have a musky odour, on which account the plant has received its specific name.

GENUS XIII. ELA'TINE.—LINN. *Water-wort.*

Nat. Ord. ELA'TINEÆ. CAMB.

GEN. CHAR. Calyx inferior, three or four partite. Petals three or four, sessile. Stamens equal in number to the petals, or twice as many. Styles three or four, very short. Stigmas capitate. Capsules three or four celled, three or four valved, and many seeded. Seeds cylindrical, attached to a central free receptacle.—Name said to be derived from *ελατη*, a fir; but without any apparent resemblance in the plants of our genus to that tree.

1. *E. hexan'dra*, De Cand. (Fig. 662.) *Hexandrous Water-wort.* Leaves opposite, spatulate; flowers alternate, pedicellated, erect, hexandrous, tripetalous; capsule turbinate, concave at the summit, three celled; seeds about twelve in each cell, nearly straight, ascending.

De Cand. Ic. pl. rar. 1. p. 14, t. 43. f. 1.—Prod. Sys. Nat. par. 1. p. 390.—Hooker, British Flora, vol. i. p. 187.—*E. Hydropiper*.—English Botany, t. 955, var. β . Linn.—*E. tripetala*, Sm.—English Flora, vol. ii. p. 243.—Lindley, Synopsis, p. 48. Suppl. 321.

Root white branched fibres from the axis of the branches and leaves. *Stem* round, slender, thread-like, creeping, repeatedly branched and spreading, of a pale delicate green, having eight radiating longitudinal cavities round a central nerve. *Leaves* small, smooth, spathulate, tapering at the base into a footstalk, having a mid-rib, and sometimes lateral branches, the margin entire, or slightly waved, in opposite pairs, sometimes four together, without stipules. *Flowers* solitary from the axis of the leaves, elevated on a pedicle of variable length, sometimes very short, appearing to be sessile, but mostly it is about the length of the leaves, erect, smooth, simple. *Calyx* of three somewhat fleshy ovate concave pieces, green. *Corolla* of three pale rose coloured petals, roundish, with an acute point, concave, shorter than the calyx. *Stamens* six, shorter than the petals, opposite, and alternating with them. *Filaments* awl-shaped, the *anthers* ovate, yellow, of two cells, bending over the germen upon the four-cleft stigmas. *Capsule* shorter than the persistent calyx, turbinate, depressed at the summit, three celled, three valved, roundish, becoming obscurely angular. *Seeds* about twelve in each cell, ascending, nearly straight, the lower part only slightly bent, from being attached to the placenta by its base, seeds a pale brown colour, beautifully marked with longitudinal ribs and transverse stria.

Habitat.—Margins of pools and ditches, especially in a sandy soil; rare. Bomere pool, near Condover, Shropshire.—Rev. E. Williams. Near Binfield, Berks.—Mr. T. F. Forster. By the mill dam at Filgate, near Crawley, Sussex.—Mr. Borrer. Loch Montheath, Perthshire, Scotland.

Annual; flowering in July and August.

2. *E. Hydropiper*, Linn. (Fig. 663.) *Four-petaled Water-wort*. Leaves opposite, spathulate; flowers alternate, pedicellated and sessile, erect, octandrous, tetrapetalous; capsule roundish, convex at the summit, four celled; seeds about four in each cell, much curved, and pendulous.

De Cand. Ic. pl. rar. 1. p. 13 t. 43. f. 2.—Prod. Sys. Nat. pars. 1. p. 390.—English Botany, Suppl. t. 2670.—Hooker, British Flora, vol. i. p. 188.—Lindley, Synopsis, Suppl. p. 321.

Root white branched fibres from the axis of the branches and leaves. *Stem* round, slender, thread-like, creeping, repeatedly branched and spreading, quite smooth, of a pale delicate green, having eight radiating longitudinal cavities, round a central nerve. *Leaves* small, smooth, spathulate, tapering at the base into rather a broad footstalk, having a mid-rib and sometimes lateral veins, the margins entire, in opposite pairs, sometimes four together, having at the base on each side an ovate pale membranous stipule, deeply and irregularly toothed. *Flowers*

solitary at the axil of the leaves, nearly sessile, or elevated on a slender pedicle, rarely as long as the leaves, erect, smooth, simple, alternate. *Calyx* of four nearly ligulate obtuse somewhat fleshy segments, of a green colour, shorter than the petals and fruit. *Corolla* of four ovate white or pale rose coloured *petals*, concave, closed over the germen and *stamens*, which are eight in number, opposite, and alternating with the petals. *Filaments* awl-shaped. *Anthers* yellow, two celled. *Styles* very short, and *stigmas* minute. *Capsule* longer than the persistent calyx, roundish, convex at the summit, four celled, four valved, becoming obscurely angular as the seeds arrive at maturity. *Seeds* about four in each cell, pendulous from its connate base, attached to a central placenta at the crown of the dissepiments, curved almost double, beautifully marked with longitudinal ribs and numerous transverse stria.

Habitat.—Sandy margin of a lake on the South-east side of Llyn Coron, near Abberffraw, Anglesea.—*Mr. J. E. Bowman*, and *Mr. W. Wilson*.

Annual; flowering in August.

This little plant does not appear to have been observed as a native of Britain until 1830, when it was discovered by Mr. Bowman growing in matted tufts in the station above given, from four to six inches wide. Besides the two species here described there are found on the Continent two others that are probably also natives of Britain; one is *E. tiandra*, Schkur. Leaves opposite, flowers sessile, opposite, triandrous, tri-petalous, seeds smooth and curved. And the other is *E. Alsinastrum*, Linn. Leaves whorled, flowers sessile, whorled.

These are amongst the smallest of our native flowering plants; but although so small, the student will observe there is in their structure much that is beautiful to admire, and curious to excite his investigation; and while the wanderer, heedless of the minute form of Nature's works, shall pass them unnoticed in his mountain rambles, or in his stroll along the margins of the placid lake, the student's practised eye finds in them rich stores of knowledge and pleasure.

CLASS IX.

ENNEAN'DRIA. 9 STAMENS.

ORDER I.

HEXAGYN'IA. 6 PISTILS.

GENUS I. BUTOMUS.—LINN. *Flowering-rush*.

Nat. Ord. BUTOMEÆ. RICH.

GEN. CHAR. *Perianth* single, inferior, six-partite, coloured. *Stamens* nine, six in an outer circle, three in an inner. *Capsules* six,

connate at the base. *Seeds* numerous, linear-oblong, attached to the whole inner lining of the capsule. Named from βους, an ox; and τινω, to cut; because the sharp edges of the leaves cut the mouths of cattle that feed upon it.

1. *B. umbellatus*, Linn. (Fig. 664.) *Common Flowering-rush*. Leaves linear, triangular; flowers in a terminal umbel; involucre of three pieces.

English Botany. t. 651.—English Flora, vol. ii. p. 245.—Hooker, British Flora, vol. i. p. 188—Lindley, Synopsis, p. 272.

Root fibrous, with white tuberous fleshy horizontal underground stems. The whole plant smooth, of a loose cellular structure. *Scape* from three to five feet high, solitary, round, simple, naked. *Leaves* erect, a little shorter than the scape, acutely triangular below, linear, and flat above, often spirally twisted. *Inflorescence* a simple terminal umbel, of numerous handsome flowers, of a rose colour, nearly an inch across when expanded. *Involucre* of three lanceolate, ovate, with long narrow pointed pieces, concave, spreading. *Pedicles* of the ray slender, spreading, about four inches long, each having at its base a thin membranous sheathing bractea, of a brownish colour. *Perianth* single, of six ovate concave pieces, the three inner ones smallest. *Stamens* nine, six in an outer circle, three in the inner filaments, awl-shaped, shorter than the perianth. *Anthers* oblong, of two cells, bursting longitudinally, and then becoming contracted into a somewhat heart-shape. *Style* about as long as the compressed germen, recurved, with an oblong cleft stigma. *Capsules* six, oblong, crowned with the persistent style. *Seeds* numerous, very small, attached to the whole inner surface of the capsule.

Habitat.—Ditches, the margins of rivers, and marshy places; frequent in England and Ireland, Duddingston Loch, and Loch of Clunie, Scotland, but probably introduced.

Perennial; flowering in June and July.

The Flowering-rush is the only British species in this Class of the Linnæan system; it is very common in many parts of England and Ireland, and may be ranked amongst the most beautiful flowers. It appears to have been used for ornamenting and decorations; for Gerard says, "it is of all others the fairest and most pleasant to behold, and serveth very well for the decking and trimming up of houses, because of the beautie and braverie thereof." The leaves are acrid, and somewhat purgative, but are rarely, if ever, used for any other purposes than those of the common rush.

The large terminal umbel of numerous flowers, varying in colour from a deep pink to almost white, and often streaked with purple, render it a conspicuous and favourite flower.

But independent of the general beauty of the flowers, they will not fail, upon examination, to excite an additional interest. In them will be observed the prevalence of the ternary disposition of the several parts; the leaves are triangular, the involucre is in three seg-





665

Monotropa hypopitys.



666

Pyrola rotundifolia.



667

Pyrola media.



668

Pyrola minor.



669

Pyrola secunda.



670

Pyrola uniflora.

ments, the perianth of three outer and three inner petaloid pieces; the stamens six in the outer circle, and three in the inner; the styles six, and the capsules the same number, which, moreover, are of a remarkable structure of rare occurrence, the whole inner surface being branched over with the placenta in a reticulated manner, to which the numerous small erect seeds are attached. All these particulars in the structure of *Butomus* are of considerable importance in reference to the natural arrangement of plants, as we shall afterwards have occasion to notice more at length.

CLASS X.

DECANDRIA. 10 STAMENS.

ORDER I.

MONOGYNIA. 1 PISTIL.

GENUS I. MONOTROPA.—LINN. *Bird's-nest.*

Nat. Ord. MONOTROPEÆ. NUTT.

GEN. CHAR. *Calyx* of four or five coloured pieces, gibbous at the base. *Petals* four or five, slightly united at the base. *Stamens* eight or ten. *Capsule* with four or five cells, four or five valves, many seeded. *Seeds* invested with a netted *arillus*—Named from *μνος*, one; and *τρεπω*, to turn; the flowers are all turned on one side.

1. *M. Hypo'pitys*, Linn. (Fig. 665.) *Yellow Bird's nest.* Raceme of many drooping flowers, the lateral ones with eight, the terminal one with ten stamens; the petals toothed.

English Botany, t. 69.—English Flora, vol. ii. p. 249.—Hooker, British Flora, vol. i. p. 191.—Lindley, Synopsis, p. 176.

β. *hirsuta*. Stem between the flowers pubescent, the inner side and margins of the petals, stamens and pistil hairy.

Root somewhat tapering and scaly, with branched fibres, attaching itself parasitically to the roots of trees and shrubs. *Stem* erect, from six to twelve inches high, simple, or slightly branched, succulent, of a dingy straw colour, scattered over with sessile ovate acute scale-like leaves, somewhat fleshy, and of the same colour as the stem. *Inflorescence* a terminal raceme, of several flowers, drooping on one side, erect when in seed, each on a short *pedicle*, from the axis of a scaly *bractea*, all of the same dingy yellow as the stem. *Calyx* of four, the terminal flower of five oblong pieces, concave at the base, somewhat spurred externally. *Corolla* of four, the terminal one of five oblong

petals, toothed above, plain, and slightly united at the base, smaller than the calyx, and of the same colour as the rest of the plant. *Stamens* in the lateral flowers eight, in the terminal one ten. *Filaments* erect, linear, shorter than the corolla, and alternately smaller, with small glands at the base between them. *Anthers* kidney-shaped, of one cell, two lipped. *Style* short, erect, cylindrical. *Stigmas* large, funnel-shaped, with a thick fleshy border. *Capsule* ovate, four or five furrowed, four or five celled, with as many valves. *Seeds* numerous, attached to a central placenta, small, rarely perfected, enveloped in a reticulated *arillus*.

Habitat.—Amongst the decayed roots and leaves in woods and plantations, especially of fir or beech; not very common in England; less frequent in Scotland; St. Catherine's Woods, County of Dublin, and Moore Abbey, County of Kildare, Ireland.—*Dr. Wade*.

Perennial; flowering in June and July.

The variety *β. hirsuta* is remarkable in having the inner surface of the petals, the stamens, and pistils, and frequently the calyx and bractea hairy, while the stem amongst the flowers is downy. It does not appear otherwise to differ from the common state of the plant, but is much rarer.

GENUS II. PYROLA.—LINN. *Winter-green*.

Nat. Ord. MONOTROPEÆ. NUTT.

GEN. CHAR. *Calyx* five-cleft, persistent. *Petals* five, slightly united at the base. *Style* longer than the stamens. *Filaments* awl-shaped, with two-celled *anthers*, appendiculated at the base. *Capsule* superior, of five cells, dehiscing at the angles at the base. *Seeds* numerous, invested with a winged *arillus*.—Named from *Pyrus*, a pear; from the fancied resemblance of its leaves to those of the Pear-tree.

* PYROLE. GENUINE. Koch. *Filaments* ascending at the base, awl-shaped; valves of the capsules united with woolly hairs; leaves with netted veins, as prominent on the upper as the under side.

1. *P. rotundifolia*, Linn. (Fig. 666) *Round-leaved Winter-green*. Flowers drooping, racemed; leaves obovate, rotundate, slightly crenated; style much longer than the ascending stamens, bent down at the base, curved upwards at the extremity; calyx segments lanceolate, acuminate, about half as long as the corolla.

English Botany, t. 213.—English Flora, vol. ii. p. 255.—Hooker, British Flora, vol. i. p. 192.—Lindley, Synopsis, p. 175.

Root fibrous, with creeping underground scaly stems. *Leaves* four or five at the base of the stem, obovate, or more frequently orbicular, with the margin more or less distinctly crenated, and often slightly

notched at the end, smooth, dark shining green above, paler beneath, having a mid-rib and netted veins, equally as prominent on the upper as the under side, the footstalk from two to three inches long, flattish, somewhat channeled above. *Stem* from six to twelve inches high, somewhat angular, with prominent stria, and generally in a spiral manner, smooth, erect, terminating in an elongated raceme of numerous white *flowers*, each elevated on a short drooping *peduncle*, equally on all sides, arising from the axis of an elliptic lanceolate *bractea*, of a pale green colour, longer than the peduncle, and frequently scattered, on the stem are several somewhat membranous scales. *Calyx* with five lanceolate acuminate segments, each three ribbed, often pinkish, about half as long as the corolla, persistent. *Corolla* of five oblong ovate petals, slightly united at the base, white. *Stamens* with awl-shaped *filaments*, all curved inwards, scarcely more than half as long as the style. *Anthers* large, yellow, of two cells, each opening at the apex with a somewhat tubular pore. *Style* as long again as the stamens, bent downwards at the base, but curved upwards towards the extremity. *Stigma* with a fleshy ring around five projecting points. *Capsule* orbicular, of five acute lobes, depressed at the top around the central persistent style, five celled, five valved, bursting from the base at the angles, which are united by woolly hairs. *Seeds* numerous, attached to a central placenta, small, invested with a membranous *arillus*, elongated at each end.

Habitat.—Moist woods and shady places; rare. Near Bradwell and Middleton, Suffolk; Larlingford, Norfolk.—*Rev. G. R. Leathes*. Kent.—*Rev. G. E. Smith*. Gounacha Wood, Forfarshire, and other places in Scotland.—*Mr. J. D. Hooker*. Near Garvagh, County of Derry, Ireland.—*Mr. D. Moore*.

Perennial; flowering from July to September.

This is the largest of our species of *Pyrola*. The flowers have a pleasant fragrance, and are readily known by the curious long curved style, and the lanceolate segments of the calyx. It has been frequently mistaken for both of the following species, with which it often grows, but they are all three readily distinguished from each other.

2. *P. media*, Swartz. (Fig. 667.) *Intermediate Winter-green*. Flowers drooping, racemed; leaves obovate, rotundate, crenated; style longer than the slightly incurved stamens and corolla, straight, or slightly curved; stigma with a fleshy ring, round, five erect points; calyx of five short ovate lanceolate teeth.

English Botany, t. 1945.—English Flora, vol. ii. p. 256.—Hooker, British Flora, vol. i. p. 192.—Lindley, Synopsis, p. 175.

Root fibrous, with creeping underground stems. *Leaves* from four to six, arising from the base of the stem, ovate or obovate, or roundish, the margins distinctly crenated, and frequently notched at the end, quite smooth, of a deep shining green above, paler beneath, with a

mid-rib and numerous netted veins, equally as prominent on the upper as the under side; footstalks from one to two inches long, or more, somewhat winged or dilated, more or less channeled above. *Stem* erect, from six to twelve inches high, angular and twisted spirally, smooth, terminated in a raceme of numerous drooping *flowers*, elevated on a short *peduncle*, equally on all sides, arising from the axis of a lanceolate *bractea*, of a pale green colour, longer than the peduncle, and mostly there are several scattered upon the stem. *Calyx* of five ovate lanceolate teeth, much shorter than the corolla, each three ribbed, persistent. *Corolla* of five roundish ovate petals, pure white, or pinkish, slightly united at the base. *Stamens* with awl-shaped *filaments*, scarcely half as long as the style, bearing rather large yellow two celled *anthers*, opening with rather large terminal pores. *Style* straight, or slightly bent downwards from the base, protruded beyond the corolla, with a club-shaped *stigma*, having a thick fleshy ring round five projecting points. *Capsule* orbicular, depressed around the central persistent style, of five acute lobes, five celled, and five valved, bursting from the base at the angles, which are united with white woolly hairs. *Seeds* numerous, small, invested with a membranous *arillus*, elongated at each end.

Habitat.—Woods and shady places, especially in the North of England, Scotland, and in the County of Antrim, Ireland.—*Mr. Templeton*.

Perennial; flowering in July and August.

3. *P. m'nor*, Linn. (Fig. 668.) *Lesser Winter green*. Flowers drooping, racemed; leaves ovate, rotundate, slightly crenated; style straight, as long as the erect stamens, included within the corolla; stigmas large, of five spreading lobes; calyx of five broad acute teeth.

English Botany, t. 158. (bad.)—English Flora, vol. ii. p. 257.—Hooker, British Flora, vol. i. p. 192.—Lindley, Synopsis, p. 175.—*P. rosea*.—English Botany, t. 2543.

Root fibrous, with creeping underground scaly stems. *Leaves* three to six at the base of the stem, ovate, rotundate, often with an obtuse point, and not unfrequently notched, the margins more or less deeply and unequally crenated, quite smooth, of a deep shining green above, a pale dull green beneath, having a mid-rib and branched reticulated veins, equally prominent on the upper side as the under, footstalks dilated, or somewhat winged and channeled above, from one to two inches long. *Stem* erect, smooth, angularly striated, sometimes spirally twisted, from four to eight inches high, terminating in a raceme of numerous drooping flowers, each elevated on a short *peduncle*, from the axis of a small lanceolate *bractea*, scarcely as long as itself. *Calyx* of five short broad acute spreading three ribbed teeth. *Corolla* white or pinkish, of five roundish ovate concave *petals*. *Stamens* as long as the style, with yellow two-celled *anthers*, opening at the apex with large round pores. *Styles* short, erect, included within the corolla with

a large fleshy *stigma*, of five acute radiating lobes, without any ring round them. *Capsule* globose, depressed at the top round the persistent central style, acute, or obtusely five lobed, five celled, five valved, bursting at the angles from the base, with the margins united with white woolly hairs. *Seeds* very numerous, small, invested with the pale membranous *arillus*, tapering at each end.

Habitat.—Woods in the North of England, Yorkshire, and about Worksop, Nottinghamshire; but most frequent in Scotland, especially the Western Highlands and Hebrides, and not unfrequent in Ireland.

Perennial; flowering in July.

4. *P. secun'da*, Linn. (Fig. 669.) *Serrated Winter-green*. Flowers in a one sided raceme; style straight, much longer than the corolla; leaves ovate, acute, serrated.

English Botany, t. 517.—English Flora, vol. ii. p. 257.—Hooker, British Flora, vol. i. p. 192.—Lindley, Synopsis, p. 175.

Root fibrous, with long slender branched scaly underground stems. *Stem* mostly somewhat trailing at the base, and often branched, waved, slender, spreading, smooth, scattered with scaly *bractea*, angularly striated. *Leaves* somewhat clustered in the lower part of the stem, ovate, with an acute point, margins finely and sharply serrated, smooth, a dull green, pale beneath, the mid-rib stout, with numerous branched reticulated veins, as prominent on the upper as the under side, the *footstalk* about an inch long, slightly channeled above. *Flowers* in a terminal one sided spike, white or greenish, small, each on a slender *peduncle*, shorter than the ovate lanceolate veiny *bractea*, of a pale colour. *Calyx* of five small ovate obtuse spreading or reflexed teeth, entire or jagged, rarely downy on the margins. *Corolla* of five ovate concave *petals*, veiny. *Stamens* as long or longer than the corolla, with incurved *filaments* and large two celled yellow *anthers*, opening with large terminal pores. *Style* straight, long, projecting beyond the stamens. *Stigmas* large, of five radiating lobes, at first furrowed. *Capsule* globose, depressed at the top around the central persistent style, of five obtuse or somewhat acute lobes, five celled, five valved, bursting from the base at the angles, the margins united with a very fine cottony web. *Seeds* numerous, very small, invested with an *arillus*, tapering at each end.

Habitat.—Alpine woods, Yorkshire.—*Ray*. Not unfrequent in Scotland, especially the Highlands; in a Mountain Glen, near Garvagh, County of Derry, Ireland.—*Mr. D. Moore*.

Perennial; flowering in July.

The above species of *Pyrola* are pretty elegant little evergreen plants, with odoriferous flowers, they are increased both by cuttings and seeds, but are not very easy of cultivation, except amongst rock work in shady places in a sandy soil. They are possessed of astringent antiscorbutic properties, but are not applied to any particular use.

** PARNASSIOIDES. Koch. *Filaments awl-shaped, ascending, thick and triangular at the base. Anthers with two divergent tubular pores. Valves of the capsules with smooth edges. Veins of the leaves prominent only on the under side.*

5. *P. uniflora*, Linn. (Fig. 670.) *Single-flowered Winter-green. Flower terminal, solitary; leaves ovate, rotundate, serrated; stigmas large, with five oblong large spreading rays.*

English Botany, t. 146.—English Flora, vol. ii. p. 258.—Hooker, British Flora, vol. i. p. 192.—Lindley, Synopsis, p. 175.

Root fibrous, with long creeping underground slender stems, rarely branched. *Stem* angular, smooth, scarcely more than an inch high, scaly at the base. *Leaves* opposite, or in whorls of three, mostly only with a simple whorl, sometimes two, ovate or roundish ovate, on short footstalks, mostly dilated, and slightly channeled above, the mid-rib slender, with numerous slender netted veins, prominent on the under side only, and not on the upper, as in the above section, the margins more or less distinctly and regularly sharply serrated, quite smooth, paler on the under side. *Flower* solitary, terminal, large, white, very fragrant, on a *peduncle*, from three to four inches long, erect, having near the top one or two ovate *bracteas*. *Calyx* in five ovate oblong spreading segments, obscurely seven ribbed, finely fringed on the margins. *Corolla* mostly near an inch across, in five ovate petals, numerously veined. *Stamens* about half as long as the petals, the *filaments* awl-shaped, triangular and thick in the lower part, but not dilated, deflexed, and then curved upwards, bearing large yellow two-celled two lobed *anthers*, opening at the apex with a remarkable tubular appendage, curved and perforated at the end. *Style* stout, erect, with a large *stigma*, formed of five oblong fleshy lobes, spreading out in a star-like manner. *Capsule* globose, depressed around the persistent style, five lobed, five valved, five celled, bursting at the angles from the base, the margins of the valves smooth, without any connecting web. *Seeds* numerous.

Habitat.—Woods in Scotland; rare. Firwood, near Brodie House, Forres; Woods at Scounie.—*Mr. Bishop*. Coul, Ross-shire.—*Sir G. S. Mackenzie, Bart.* In the Oak Wood, Knock of Alves, near Elgin.—*Mr. Lawson*.

Perennial; flowering in July.

Besides the species of *Pyrola* here described, there are two others found on the Continent, the *P. chlorantha*, Swartz. and *P. umbellatum*, Linn. The former, it is not improbable, will be found growing with us; it is nearly allied to *P. rotundifolia*, from which it is distinguished by the calyx segments being ovate acuminate, not lanceolate; but in other respects it is the same.



671 *Andromeda polifolia.*



672 *Arbutus unedo.*



673 *Arctostaphylos alpina.*



674 *Arctostaphylos uva-ursi.*



675 *Scleranthus annuus*



676 *Scleranthus perennis.*

GENUS III. ANDROMEDA.—LINN. *Andromeda*.

Nat. Ord. ERI'CEÆ. JUSS.

GEN. CHAR. *Calyx* five-cleft. *Corolla* ovate or campanulate, with a five-cleft reflexed limb. *Stamens* erect, anthers awned. *Capsule* four or five celled, four or five valved, the disseppiments from the middle of the valve.—Named in allusion to the fable of the virgin *Andromeda*, the daughter of Cepheus and Cassiope, King and Queen of Cethiopia, who was chained to a rock, and exposed to the attack of a sea monster; and in like manner Linnæus, indulging in his fanciful imagination, draws the comparison of the elegant and beautiful plants of this genus to the virgin, and growing as though chained to rocks, and in dreary wastes, swamps, and marshes, where præternatural beings are feigned to dwell, and exposed to these tormentors.

1. *A. polifo'lia*, Linn. (Fig. 671.) *Marsh Andromeda*. Leaves alternate, lanceolate, the margins revolute, green and shining above, pale and glaucous beneath; flowers terminal, sub-umbellate.

English Botany, t. 713.—English Flora, vol. ii. p. 250.—Hooker, British Flora, vol. i. p. 193.—Lindley, Synopsis, p. 173.

β. costa'flora, Templ. Leaves inversely, ovate lanceolate; flowers in umbels, five sided.

Mr. Templeton. Flora Hibernica, p. 179.

A small evergreen shrub, from twelve to eighteen inches high, much branched and spreading, the *branches* round, smooth, rigid, leafy, dark brown. *Leaves* alternate, on short footstalks, lanceolate, frequently almost linear, from the margins being greatly rolled back, a smooth dark shining green above, and channeled, a pale glaucous beneath, with a stout mid-rib and numerous branched veins. *Inflorescence* a terminal umbellate raceme, of a few white or pink *flowers*, each elevated on a slender *peduncle*, about an inch long, from the base of an ovate *bractea*, drooping when in flower, erect in fruit, and mostly glaucous. *Calyx* in five ovate lanceolate segments, spreading. *Corolla* ovate, contracted at the mouth with a short five-cleft limb. *Stamens* with awl-shaped *filaments*, smooth or hairy, and ovate two-celled *anthers*, opening with terminal pores, and surmounted with two awl-shaped awns. *Style* nearly as long as the corolla, with an obtuse *stigma*. *Capsule* roundish, oblong, depressed at the top around the persistent base of the style, somewhat five angled, five celled, and five valved, with a central receptacle. *Seeds* numerous, small, roundish, compressed, smooth, shining, pale brown.

Habitat.—Peat and boggy situations in the mountainous districts, chiefly the North of England, and the Lowlands of Scotland, and not unfrequent in Ireland; the variety *β.* on a dry bog between Newport and Castleconnel.

Shrub; flowering in June.

The Marsh Andromeda is a pretty elegant little under shrub, possessed of tonic astringent properties. It is frequently cultivated in our gardens, but requires a peat or bog soil, and flourishes best in a damp exposed situation. We have observed, when it is grown in a rather dry place, that the filaments and inner surface of the corolla become more or less thickly clothed with hairs, a circumstance which seems provided for the purpose of attracting by the means of these points moisture from the atmosphere, necessary to the perfection of the seeds. It is an extensive genus of very elegant plants, for the most part natives of North America; but which with care flourish very well in our gardens, requiring in the treatment of their cultivation a damp peat earth, and an open situation. Some of them possess deleterious and poisonous properties. It is stated by Barton that *A. Muriana*, though poisonous, is found very useful when made into a decoction, and used as a wash to indolent sores, so frequent on the feet of the slaves in the Southern States of America, and that the brown dust-like matter that covers the young branches of this and other allied species, as well as that of the powdered seeds, is used as snuff.

The form of the corolla, the structure of the stamens, and capsule, will show how nearly allied this genus is to *Erica*; and they also bear a close affinity to the genus *Ledum*, one species of which, the *L. palustris*, Linn. is given in Lindley's Synopsis, as found on the north-west coast of Ireland; but we have much doubt as to its claim to admission into our Flora. It is found frequently on the coast of France, Spain, and Portugal, and perhaps may be found truly wild in our own country; we have, therefore, given the character of the genus and species in a note.*

GENUS IV. ARBUTUS.—LINN. *Strawberry-tree.*

Nat. Ord. ERICÆE. JUSS.

GEN. CHAR. *Calyx* five-cleft. *Corolla* ovate, with a small five-cleft revolute limb. *Stamens* ten, villous at the base. *Anthers* opening with terminal pores. *Berry* granulated, five-celled, each cell four or five seeded.—Named, according to Théis, from *ar*, rough; or *austere* and *boise*, a bush in Celtic.

* *LEDUM*, Linn. *Calyx* minute, of five teeth. *Corolla* of five petals. *Stamens* five or ten. *Anthers* opening with terminal pores. *Capsule* five celled, five valved, dehiscing through the dissepiments. *Seeds* numerous.

Nat. Ord. ERICÆE. JUSS.

L. palustris, Linn. *Marsh Ledum*. Leaves linear, the margins revolute, the under side and branches clothed with brown down.

A low shrub, with a terminal sub-umbellate inflorescence of numerous white or rose-coloured flowers, with a spreading corolla and ten stamens, on slender filaments.

1. *A. unedo*, Linn. (Fig. 672.) *Strawberry-tree*. Trunk erect; leaves obovate, or oblong lanceolate, serrated, coriaceous, smooth; panicles terminal; pedicles smooth; berries granulated.

English Botany, t. 2377.—English Flora, vol. ii. p. 252.—Hooker, British Flora, vol. i. p. 193.—Lindley, Synopsis, p. 174.

A bushy evergreen tree, with an erect trunk of great beauty, the bark of the trunk and branches of a dark reddish brown, the hardened cuticle scaling off in thin flakes, that of the young shoots reddish. *Leaves* numerous, scattered, persistent, obovate, or oblong lanceolate, quite smooth, of a leathery texture, a dark shining green above, pale beneath, with a stout mid-rib and numerous branched netted veins, the margin finely, somewhat irregularly and obtusely serrated, the footstalk short, channeled, the young leaves and sometimes the tender shoots scattered over with glandular hairs. *Inflorescence* a terminal panicle, branched, drooping, of numerous flowers, each on a smooth pedicle, from the axis of an ovate awl-shaped bractea. *Calyx* cleft into five obtuse pieces, very finely ciliated on the margin. *Corolla* of one piece, globose or ovate, contracted at the mouth with a reflexed limb, of five obtuse segments, a pinkish green, more or less semi-transparent. *Stamens* with awl-shaped filaments, about half as long as the corolla, hairy in the lower part, anthers yellow, of two cells, opening at the apex with rather large pores, and surmounted with short slender awns. *Style* tapering, about as long as the corolla. *Stigmas* small, obtuse. *Berry* large, of a fine scarlet colour, the size of a cherry, thickly covered over with granular points, quite hard, giving it the appearance of a strawberry, yellow internally, with five cells, each cell containing four or five small hard angular seeds.

Habitat.—About the Lakes of Killarney, Mucruss, and at Glengarriff, near Bantry, and about most of the Mountain Lakes in the barony of Beer.—*Mr. J. Drummond*.

Tree; flowering in October, the fruit ripe the following winter.

The Strawberry-tree is an highly ornamental evergreen of great beauty, not so much from the appearance of the flowers as the leaves, and the large gay looking berries which adorn it for so great a part of the year. It is a large bushy tree, sometimes forming a trunk of considerable magnitude. Mr. Mackay states that he measured one on Rough Island, Killarney, nine feet and a half in girth. The wood is hard and prettily veined, rendering it of considerable value to turners, cabinet-makers, &c. The fruit, though it perfects its seeds with us, is far from being pleasant in flavour, and is of no other use than as food for birds, especially blackbirds and thrushes, which resort to these trees in considerable numbers; but in Italy, and especially in the more Southern parts of Europe, the berries become perfectly ripe, and are by no means so ungrateful as with us, though not even there a favourite fruit. They are, nevertheless, applied to many useful purposes besides that of a dessert; they are preserved with sugar, or pickled with salt

and are much used for garnishing dishes and other ornamental purposes; but they are still more extensively used for other purposes, for when quite ripe they are pressed and fermented into wine or vinegar, or the liquor is fermented and distilled for the spirit, which by some people is not considered an unpleasant kind of brandy.

GENUS V. ARCTOSTAPHYLOS.—ADAUS. *Bear-berry.*

Nat. Ord. ERI'CEÆ. JUSS.

GEN. CHAR. *Calyx* small, five-cleft. *Corolla* ovate, with a small five cleft revolute limb. *Stamens* ten, smooth. *Anthers* without pores. *Berry* smooth, five-celled, each cell single seeded.—Named from *αρκτος*, a bear; and *σταφυλὴς*, a bunch of grapes or berries.

1. *A. alpina*, Sprengel. (Fig. 673.) *Black Alpine Bear-berry.* Stem procumbent; leaves smooth, wrinkled, serrated; racemes short, terminal.

Lindley, Synopsis, p. 174.—*Arbutus alpina*, Linn.—English Botany, t. 2030.—English Flora, vol. ii. p. 253.—Hooker, British Flora, vol. i. p. 193.

A small trailing shrub, with round numerous spreading leafy branches, the cuticle of the bark rolling off in thin layers. *Leaves* alternate, obovate, withering upon the plant, tapering at the base into a broadish footstalk, wrinkled, smooth, except being somewhat fringed on the margins near the base, dark green above, paler beneath, with a prominent mid-rib and netted veins, the margins irregularly serrated. *Inflorescence* a short terminal raceme, of a few white or pinkish flowers, globose, or ovate, with a short limb, of five obtuse segments, each flower elevated on a footstalk, having at its base an ovate acute ciliated bractea, of a greenish pink colour. *Calyx* of five short acute teeth. *Corolla* often scattered over with a few hairs about the middle. *Stamens* nearly as long as the corolla, the filaments smooth, awl-shaped. *Anthers* of two cells, opening on the side, and two short awns. *Style* longer than the stamens, with a small obtuse stigma. *Fruit* a globose smooth black berry, with five cells, and each cell containing a single seed.

Habitat.—Dry heathy places; Northern Mountains in Sutherland; not unfrequent on many of the Highland Mountains of Scotland.

Shrub; flowering in May.

This is a pretty low trailing shrub, flowering before the leaves appear in the spring, and bearing black berries about the size of a black currant, which it also resembles in flavour. The leaves towards autumn change to a fine reddish brown colour, and remain withered upon the stem.

2. *A. uva ursi*, Spreng. (Fig. 674.) *Red Bear-berry*. Stem procumbent; leaves obovate, entire, evergreen, smooth, netted with veins; racemes short, terminal.

Lindley, Synopsis, p. 174.—*Arbutus uva ursi*, Linn.—English Botany, t. 714.—English Flora, vol. ii. p. 253.—Hooker, British Flora, vol. i. p. 193.

A small trailing *shrub*, with round smooth long slender branches, very leafy. *Leaves* oblong, or obovate, evergreen, alternate, tapering at the base into a short footstalk, of a leathery texture, quite smooth, dark green above, paler beneath, with a mid-rib and much netted veins, the margins entire, somewhat rolled back, very finely downy, as well as the young shoots. *Inflorescence* in short terminal racemes, of a few crowded beautiful pale rose-coloured *flowers*. *Corolla* oblong, contracted at the mouth with a fine cleft limb, of short teeth. *Calyx* of five short ciliated segments. *Stamens* with short *filaments*, smooth, dilated at the base. *Anthers* two-celled, with lateral openings, crowned with two reflexed *awns*. *Style* short. *Stigmas* obtuse. *Fruit* a globose *berry*, depressed at the top, smooth, of a scarlet colour, mealy, with five single seeded cells, of a very astringent austere taste.

Habitat.—Dry heathy and rocky places in alpine districts in the North of England and Ireland, but most abundant in the Highlands and Western Isles of Scotland.

Shrub; flowering in May.

The leaves of the red Bear-berry possess bitter astringent and demulcent properties; when fresh dried, they have the odour, but not the taste, of Hyson tea. It had long been used as a medicine, but fell into disuse, until it was again brought into notice about the middle of the last century, and has since been used with benefit in the form of a powder of the leaves, and their infusion or decoction alone, or in combination with alkalies, as a remedy in irritable, ulcerated, or calculous affections of the urinary organs. In Russia the leaves are reported to be used in the process of tanning leather. The berries are astringent, with an unpleasant austere taste, but are excellent food for Moor game.

ORDER II.

DIGY'NIA. 2 PISTILS.

GENUS VI. SCLERAN'THUS.—LINN. *Knawel*.

Nat. Ord. SCLERAN'THÆÆ. LINK.

GEN. CHAR. *Perianth* single, with an urceolate tube, and five toothed limb. *Stamens* inserted into the perianth, often abortive. *Fruit* a single seeded *utricule*, covered with the hardened tube of the

perianth.—Name from σκληρός, *hard*; and ἄνθος, a *flower*; from the indurated nature of the floral coverings.

1. *S. an'nuus*, Linn. (Fig. 675.) *Annual Knawel*. Segments of the perianth acute, with a narrow membranous margin, as long as the tube, erect when in fruit; stems much branched and spreading; root annual.

English Botany, t. 351.—English Flora, vol. ii. p. 282.—Hooker, British Flora, vol. i. p. 194.—Lindley, Synopsis, p. 218.

Root slender, tapering, branched. *Stems* numerous, much branched in a dichotomous manner, widely spreading on all sides, round, smooth, or more frequently scattered over with soft pubescence. *Leaves* numerous, linear, awl-shaped, keeled at the back, dilated into thin pale membranous margins at the base, and ciliated with soft hairs, opposite, slightly combined. *Flowers* numerous, sessile in the axis of the leaves, solitary, or a number of them clustered together. *Perianth* single, urn-shaped, paleish green, ten ribbed, with as many furrows between, smooth, the limb of five oblong acute teeth, with a pale narrow membranous margin, as long or longer than the tube, erect, or somewhat spreading when in fruit. *Corolla* wanting. *Stamens* about ten, inserted into the mouth of the perianth, erect, often unequal, shorter than the limb of the perianth. *Filaments* awl-shaped. *Anthers* small, yellow, two celled, roundish. *Styles* two, spreading, simple, as long as the stamens, with a small obtuse stigma. *Fruit* a utricle, formed of a pale thin membrane, and enveloped in the hardened tube of the perianth, containing a round single seed.

Habitat.—Corn fields; frequent.

Annual; flowering in June and July.

2. *S. perennis*, Linn. (Fig. 676.) *Perennial Knawel*. Segments of the perianth obtuse, with a broad membranous margin, incurved when in fruit; stem branched and procumbent; root perennial.

English Botany, t. 352.—English Flora, vol. ii. p. 283.—Hooker, British Flora, vol. i. p. 194.—Lindley, Synopsis, p. 218.

Root woody, tapering, branched. *Stems* procumbent, branched and spreading, from three to four inches long, round, smooth, glaucous, sometimes hairy, mostly becoming of a purplish colour. *Leaves* numerous, linear, awl-shaped, membranous and united at the base, smooth or downy, ciliated on the margins at the base, of a pale glaucous hue. *Flowers* axillary, solitary, or in crowded clusters of several together. *Perianth* single, the limb in five roundish oblong concave segments, about as long as the tube, with a broad pale thin shining membranous border, closing over the mouth of the tube when in fruit. *Stamens* with awl-shaped *filaments*, rather shorter than the limb of the perianth, *Anthers* ovate, yellow, of two cells, some of them frequently abortive. *Style* two, longer than the stamens, with a simple obtuse stigma. *Fruit* an utricle, with a pale thin membranous covering, containing a solitary seed, and enveloped in the hardened tube of the perianth.



677 *Chrysosplenium alternifolium*.



678 *Chrysosplenium oppositifolium*.



679 *Saxifraga oppositifolia*.



680 *Saxifraga hirculus*



681 *Saxifraga aizoides*



682 *Saxifraga stellaria*

Habitat.—Open fields in a sandy soil ; rare. About Eldon, Suffolk.
—*Ray*. Norfolk and Suffolk, and near Forfar, Scotland.—*Mr. D. Don*.
Perennial ; flowering from August to October.

This little plant is more frequent on the Continent than with us, growing in open sandy fields and amongst corn. In the autumn, the leaves, as well as the stems, change to a reddish brown colour. Several other species of the genus are described, but none of them are applied to any particular use, but are considered as troublesome weeds.

GENUS VII. CHRYSOSPLENIUM.—LINN. *Golden Saxifrage*.

Nat. Ord. SAXIFRAGEÆ. JUSS.

GEN. CHAR. *Perianth* single, four or five-cleft, irregular, somewhat coloured. *Stamens* eight or ten, inserted into a glandular disk. *Styles* two, spreading. *Capsule* of one cell, with two beaks at the apex. *Seeds* numerous.—Named from χρυσος, gold ; and σπλην, the spleen ; from the supposed virtues of the plant in curing diseases of the spleen.

1. *C. alternifolium*, Linn. (Fig. 677.) *Alternate-leaved Golden Saxifrage*. Leaves alternate, sub-reniform, crenated, the lower ones on long footstalks.

English Botany, t. 54.—English Flora, vol. ii. p. 260.—Hooker, British Flora, vol. i. p. 194.—Lindley, Synopsis, p. 66.

Root fibrous. *Stem* procumbent at the base, and somewhat creeping, putting out fibrous roots from the axis of the leaves and branches, smooth, fleshy, angular, about three inches high, leafy at the base and summit, with only one or two on the intermediate part of the stem. *Leaves* roundish, heart-shaped or kidney-shaped, the upper ones mostly wedge-shaped, the margin deeply and somewhat doubly crenated, yellowish green above, pale and polished beneath, and scattered over on both sides, with rather stout bristles, the lower ones on long footstalks, the upper on short ones. *Flowers* terminal, sessile, or on short peduncles, in a sub-corymbose or umbellate manner, bright yellow, the *perianth* single, four, rarely five-cleft, into acutely pointed irregular sized segments, longer than the tubular base. *Stamens* eight or ten, with slender short filaments, inserted into the glandular disk. *Anthers* roundish, of two cells. *Styles* two, short, spreading, persistent, and forming beaks upon the top of the single celled capsule, which is surrounded with the perianth. *Seeds* small, numerous.

Habitat.—Boggy places and amongst wet rocks ; rare, Cheshire, Mr. W. Wilson. Norfolk ; several places about Mansfield, Nottinghamshire ; more frequent in the North of England and Scotland, but not common ; near Belfast, Ireland.—*Mr. Templeton*.

Perennial ; flowering in May and June.

2. *C. oppositifolium*, Linn. (Fig. 678.) *Opposite-leaved Golden Saxifrage*. Leaves opposite, roundish, heart-shaped or wedge-shaped, sub-crenated.

English Botany, t. 490.—English Flora, vol. ii. p. 260.—Hooker, British Flora, vol. i. p. 194.—Lindley, Synopsis, p. 66.

Root fibrous. *Stem* branched at the base, spreading, and putting out roots from the axis of the branches and leaves, angular, more or less downy, especially below. *Leaves* opposite, on short broad foot-stalks, channeled above, roundish, heart-shaped, or more frequently wedge-shaped at the base, yellowish green above, paler beneath, the margin entire, waved or crenated, scattered over with hairs, and not unfrequently smooth. *Flowers* terminal, sessile, solitary, or several together in a sub-umbellate manner, the *perianth* cleft into four obtuse spreading segments. *Stamens* mostly eight, inserted into a glandular disk, the *filaments* slender, short, of irregular lengths, with ovate *anthers*, of two cells. *Styles* short, simple, spreading, persistent, and forming beaks upon the top of the single celled *capsule*, which is surrounded with the persistent perianth. *Seeds* numerous, small, round.

Habitat.—Damp and shady places near streams; frequent.

Perennial; flowering in May and June.

This species is readily distinguished from the former by its opposite leaves, which are smaller, and scarcely crenated; and though sometimes heart-shaped at the base, they are, for the most part, in a wedge-shaped form. The meaning of the word *Chrysosplenium* will point out the medicinal virtues which the plants of this genus were once supposed to possess; but in modern times they have lost their reputation as medicinal plants, and have been used from their mildness as a salad.

GENUS VIII. SAXIFRAGA.—LINN. *Saxifraga*.

Nat. Ord. SAXIFRAGEÆ. JUSS.

GEN CHAR. *Calyx* of five segments, free, or attached to some part of the ovary. *Corolla* of five petals, rarely irregular. *Styles* two, persistent. *Capsule* free, or attached to the calyx, two beaked, two celled, opening between the beaks. *Seeds* numerous, smooth, or rough, the receptacle in the middle of the dissepiments.—Name from *saxum*, a stone; and *frango*, to break; from some of the species having been used for the cure of stone in the bladder, or perhaps from many of the species growing on rocks, and their roots penetrating the crevices.

SECT. 1. PORPHYRION. Tausch. Hort. Canal. fasc. 1. De Cand prod. p. 4. p. 17. *Stem* leafy. *Leaves* opposite, small, thick, leathery, persistent.

1. *S. oppositifolia*, Linn. (Fig. 679.) *Opposite-leaved Purple Mountain Saxifrage*. Stem prostrate, much branched; leaves opposite, ovate, the apex thickened, obliquely truncated, and with one pore, below fleshy, triangular, ciliated, the erect branches densely imbricated, the prostrate ones with distant pairs; flowers terminal, solitary; calyx segments obtuse, ciliated, stamens shorter than the corolla.

English Botany, t. 9.—English Flora, vol. ii. p. 266.—Hooker, British Flora, vol. i. p. 197.—Lindley, Synopsis, p. 68.

Roots small, fibrous, branched. *Stems* numerous, much branched, prostrate, spreading, round, red, smooth, or mostly scattered over with hairs. The flowering branches erect, short, densely clothed below with leaves, the prostrate barren branches long, with distant pairs of leaves, rarely crowded. *Leaves* ovate or oblong, green, or of a reddish colour, the apex thickened, fleshy, obliquely truncated, perforated with one, sometimes two, rarely three pores, the mid-rib thick, fleshy, making the lower part of the leaf triangular, the margins ciliated, with pale rigid simple bristles. *Flowers* solitary, terminating the short erect branches, nearly sessile. *Calyx* attached to about the middle of the capsule, of five oblong obtuse segments, with the margins ciliated, with short pale rigid simple bristles. *Corolla* of five oblong five-ribbed petals, of a fine purple colour, rather large and spreading. *Stamens* erect, shorter than the corolla, with awl-shaped filaments and small ovate anthers, of two cells. *Styles* awl-shaped, spreading. *Stigmas* simple, small. *Capsule* surrounded about the middle with the limb, and enveloped in the lower part with the calyx, smooth, large, veiny, two beaked, pointed with the base of the styles, two celled, with a central placenta, bursting between at the junction of the beaks. *Seeds* numerous, small, pale brown, triangular, oblong, rugose.

Habitat.—Alpine rocks; summit of Ingleborough-hill, Yorkshire.—*Dr. Richardson*. Snowden and other Welsh mountains; frequent on the Highland mountains of Scotland, and in Ireland on the mountains in Joyce-country, near Lough Corrib; mountains of Ennishowen.—*R. Brown, Esq. LL.D.* On Benyevena, County of Derry.—*Mr. D. Moore*.

Perennial; flowering from April to June.

The flowers of this species are very large for the size of the plant; they are, when first blown, of a pinkish colour, but become in the course of a short time of a fine dark purple, and very beautiful. It is readily cultivated, either in pots almost filled with stones, mixed with a little light soil, and may with care and attention be kept by a succession of pots in flower almost all the year round; or on ornamental rock work, where it is one of our most beautiful plants, forming thick tufts that spread over the stones, or hang pendent: it mostly bears a profusion of its beautiful flowers, but requires to be grown in an open airy situation.

Sect. 2 *Hirculus*. *Tausch*. Hort. Canal. fasc. 1. De Cand. prod. p. 4. p. 44. *Stem leafy. Leaves alternate, narrow, plane, entire, ciliated, or toothed. Calyx reflexed, erect, or spreading.*

2. *S. Hir'culus*, *Linn.* (Fig. 680.) *Yellow Marsh Saxifrage*. Stem erect, leafy, slender, prostrate at the base, downy above; leaves alternate, lanceolate, flat, entire, veiny, the radical ones petiolated; calyx inferior, reflexed, the segments obtuse, the margins ciliated; petals obovate, veiny, with a two valved glandular furrow at the base.

English Botany, t. 1009.—English Flora, vol. ii. p. 267 —Hooker, British Flora, vol. i. p. 197.—*Hirculus ranunculoides*, *Haworth*.—Lindley, Synopsis, p. 67.

Root of black branched fibres. *Stem* solitary, erect, round, simple, rarely branched, from three to six inches high, slender, filiform, leafy, smooth below, downy above, procumbent at the base, and with a few short spreading leafy branches, mostly clothed with soft rusty hairs. *Leaves* alternate, obtusely lanceolate, entire, smooth, shining, and beautifully marked with close elevated dotted lines, the margins somewhat rolled back, pale beneath, and with slender branched veins, the stem leaves sessile, those of the branches tapering into a footstalk of variable length, and are either smooth or fringed with soft silky hairs. *Flowers* solitary, terminal, rather large, of a bright yellow, spotted with red in the lower half. *Calyx* inferior, of five oblong obtuse at length reflexed segments, scarcely united at the base, the margins mostly copiously ciliated with soft hairs. *Corolla* of five obovate oblong petals, two or three times longer than the calyx, numerous marked, with slender much branched veins, united at the base in the short claw, and marked on the inner side near the base with a two valved nectariferous furrow. *Stamens* erect, shorter than the corolla, the filaments awl-shaped, slender. *Anthers* of two valves, yellow. *Styles* very short. *Stigmas* spatulate, with inflexed margins, becoming plane. *Capsule* oblong, two celled, crowned by the persistent somewhat divaricating stigmas. *Seeds* numerous, oblong, shining, brown, rugose.

Habitat.—Wet moors; rare. Knutsford, Cheshire.—*Dr. Kingstone*. Cotherstone fell, Yorkshire.—*Mr. J. Binks*. Moors south of Langton Lees Farmhouse, Berwickshire, plentiful.—*Mr. Thos. Brown*. In an extensive marsh three miles from Cloghjordau, County of Tipperary, Ireland.—*Mr. J. Hodgens*.

Perennial; flowering in August.

This very beautiful and remarkable species of Saxifrage is very different from all other of our species; it is nearer allied in habit to the following than any other. "It is singular," Sir W. J. Hooker observes, "that this plant, which I have seen abundantly in Iceland, and which was found so plentifully by our arctic American voyagers and travellers, is found no further north in Britain than Berwickshire."

3. *S. azoides*, Linn. (Fig. 681.) *Yellow Mountain Saxifrage*. Stem branched, ascending; leaves linear, lanceolate, mucronate, with a pore below the point, more or less ciliated, crowded below, scattered above, fleshy; calyx half superior, with obtuse spreading segments; petals oblong, longer than the calyx.

English Botany, t. 39.—English Flora, vol. ii. p. 268.—Hooker, British Flora, vol. i. p. 197.—*Leiogyne aizoides*, Don.—Lindley, Synopsis, p. 67.

Root fibrous. *Stems* tufted, procumbent at the base, simple, or with several short slender spreading leafy branches from below, paniculated above, round, smooth, or mostly clothed with soft spreading hairs, four to eight inches high, much crowded with leaves at the base, scattered above. *Leaves* linear lanceolate, mostly with a short bristle at the point, flat on the under side, slightly convex on the upper, somewhat fleshy, ciliated, with stout pale bristles, sometimes numerous, more frequently scattered, rarely quite smooth or serrato-ciliated, and below the apex is a glandular pore. *Inflorescence* a terminal branched sub-corymbose panicle, with downy glutinous branches, mostly of numerous flowers, sometimes but rarely there is only a solitary terminal flower. *Flowers* a bright yellow, beautifully spotted with orange: when the whole of the petals are of an orange colour, it is the variety β . *crocea* of Gaudin and others. *Calyx* of five ovate obtuse spreading segments, united at the base, and when in flower appearing inferior, but when in fruit it surrounds the capsule about the middle. *Petals* oblong, obtuse, rather longer than the calyx, three ribbed, spreading. *Stamens* with awl-shaped *filaments*, nearly as long as the petals. *Anthers* ovate, of two cells. *Styles* thick, with depressed stigmas. *Capsule* somewhat globular, crowned by the styles. *Seeds* numerous, ovate, triangular, rugose.

Habitat.—Alpine districts, in damp places; abundant in the North of England, Wales, Scotland, and Ireland.

Perennial; flowering from July to September.

The yellow Mountain Saxifrage is an extremely pretty little mountain plant; its bright golden flowers elegantly spotted with red, gaily decorate the damp places and margins of the rills, often in great abundance, forming close patches; and in similar damp places amongst artificial rock work it flourishes well, and flowers freely.

Sect. 3. ARABIDIA. Tausch. Hort. Canal. fasc. 1. De Cand. Prod. p. 4. p. 40. *Stem leafy at the base. Leaves flexuous, alternate, wedge-shaped, or obovate, persistent. Scape paniculated, annual, leafless. Calyx reflexed, free. Petals clawed, sometimes unequal.*

4. *S. stella'ris*, Linn. (Fig. 682.) *Starry Saxifrage*. Stem short, crowned with a tuft of leaves, or sparingly leafy; leaves oblong, wedge-shaped, angularly toothed to about the middle; scape leafless, sub-corymbose; calyx inferior, free, reflexed; petals spreading, each

with a short claw, and marked with two yellow spots near the base; capsule membranous, veiny.

English Botany, t. 167.—English Flora, vol. ii. p. 264.—Hooker, British Flora, vol. i. p. 196.—*Robertsonia Stellaris*, Haworth.—Lindley, Synopsis, p. 70.

Root of numerous long slender branched fibres. *Stem* short, rarely more than an inch long, frequently branched, with a rosaceous tuft of leaves, crowded or alternate, and each branch mostly terminated in a scape. *Leaves* oblong, wedge shaped, sessile, or tapered into a slender footstalk, somewhat fleshy, but flexuous, angularly toothed to about the middle, or quite entire, as in variety β , of a yellowish green colour, paler beneath, sometimes purple, smooth, or scattered over with hairs, and with a rather stout mid-rib. *Scape* from one to six inches high, round, somewhat striated, nearly smooth, or clothed with hairs, and glutinous, terminating in a corymbose panicle, of a few flowers, the *peduncles* ascending, slender, hairy, each having at its base a linear *bractea*; sometimes there are three united at the base. *Flowers* spreading, star-like, the *calyx* in five ovate acute three ribbed segments, spreading when in flower, reflexed in fruit, inferior, free, smooth, rarely hairy. *Petals* five, white, each with two yellow spots near the base, ovate-lanceolate, three ribbed, contracted at the base into a short claw, longer than the calyx. *Stamens* with awl-shaped *filaments*, shorter than the corolla. *Anthers* ovate, two celled. *Styles* very short, spreading, with small *stigmas*. *Capsule* oblong, ovate, sub-membranous, smooth and veiny. *Seeds* numerous, small, ovate, brown, rough, with longitudinal rows of small tubercles.

Habitat.—Wet rocks and damp places in the mountainous districts of the North of England, and Ireland. β . rock on Ben Nevis.—Mrs. S. Murray.

Perennial; flowering from June to August.

This is an extremely variable plant in its size and appearance. It is sometimes found in cold elevated places, with the flowers almost sessile amongst the leaves; frequently the stem has only a solitary scape, and almost as often it is much branched, and with numerous scapes; the flowers are mostly in a branched corymbose panicle, but sometimes they are nearly sessile, in a capitate form; the leaves are either smooth or hairy, as well as the scapes, and the petals are marked with small or larger spots.

Sect. 4. HYDATICA. Tausch. Hort. Canal. fasc. 1. De Cand. Prod. p. 4. p. 41. *Stem leafy at the base. Leaves persistent, leathery, wedge-shaped, or sub-orbicular. Scape annual, paniculated, leafless. Calyx reflexed, free. Petals obovate, with palmate veins.*

5. *S. Ge'um*, Linn. (Fig. 683.) *Kidney-shaped Saxifrage.* Leaves roundish, kidney-shaped, acutely crenated, more or less hairy; foot-



683



Saxifraga geum.



684

Saxifraga geum beta dentata.



685

Saxifraga hirsuta.



686



Saxifraga umbrosa.



687



Saxifraga nivalis.



688



Saxifraga granulata.

stalks linear, channeled; scape loosely paniculated; calyx segments obtuse, reflexed; capsule superior, ovate.

English Flora, vol. ii. p. 261.—D. Don in Trans. of Linn. Soc. vol. 13. p. 249.—Hooker, British Flora, vol. i. p. 195.—Mackay's Flora Hibernica, p. 64.—*Robertsonia Geum*, Haworth.—Lindley, Synopsis, p. 70.

α. Leaves hairy on both sides, the under surface beautifully reticulated with purple. (Mackay's Flora Hibernica, p. 64.)

β. dentata. (Fig. 684) Leaves smooth on both sides, more sharply toothed. Mackay's Flora Hibernica, p. 64.—S. Geum.—English Botany, t. 1561.—(*Leaves smaller than usual.*)—*Robertsonia dentata*, Haworth in Append. Synopsis, Succia.

γ. polita. Leaves light green, smooth and shining, sharply toothed. Mackay's Flora Hibernica, p. 65.—*Robertsonia polita*, Haworth.

δ. elegans. Leaves orbicular, dark green, smooth and shining; footstalks flat above, linear, hairy on the edges, about as long as the leaves; flowers spotted with red.

S. elegans. Mackay's Flora Hibernica, p. 65.—S. Geum, var. *γ* Don. *γ. guttata.*—Lindley, Synopsis, p. 71.

ε. gracilis. Leaves hairy on both sides, smaller than any of the preceding; scape slender; flowers cream-coloured, spotless; var. *δ.* of Mackay, Flora Hibernica, p. 65.

Root fibrous, bearing a tuft of numerous spreading leaves. *Leaves* evergreen, of a leathery texture, almost orbicular, with a more or less deeply depressed base, giving it a kidney-shaped appearance, the margin crenated, with acute regular teeth, the terminal one broader and shorter than the others, green above, paler beneath, or of a purple colour, and smooth or hairy, the footstalks long, linear, channeled above, the base dilated, more or less densely clothed with spreading hairs. *Scape* solitary, erect, from six to twelve inches high, branched in the upper half in a paniculated manner, the branches alternate, and clothed more or less densely with viscid hairs, of a pink colour, the branches of the panicle as well as the *pedicles* of the flowers arising from the base of a linear obtuse small *bractea*. *Flowers* numerous, white, cream-coloured, or more or less spotted with yellow and red. *Calyx* of five reflexed ovate obtuse pieces. *Corolla* of five obovate petals, nearly as long again as the calyx, more or less distinctly veined. *Stamens* with linear *filaments*, as long as the petals. *Anthers* of two spreading lobes. *Styles* short, slightly diverging. *Stigmas* small. *Capsule* ovate, two celled, green or purplish. *Seeds* numerous, small.

Habitat.—On the mountains of Ireland. *α.* sheltered spot below Turk Waterfall, Killarney, and only there; *β.* the most common variety, Mangerton and other mountains in Kerry, Priest's Leap and other mountains near Bantry, abundant; *γ.* on Connor hill, near Dingle. *δ* on the summit of Turk mountain, Killarney; *ε.* on Connor hill, near Dingle.—*All found by Mr. J. T. Mackay.*

Perennial; flowering in May and June.

This species, together with its varieties, are all referred, and probably with great reason, by De Candolle in his *Prodromus*, Pars. 4. p. 42. to the following.

6. *S. hirsuta*, Linn. (Fig. 685.) *Hairy Oval-leaved Saxifrage*. Leaves ovate, rotundate, more or less heart-shaped at the base, with sharp cartilaginous teeth, hairy; footstalk long, linear, channeled; scape loosely paniculated; calyx segments obtuse, reflexed; capsule superior, ovate.

English Botany, t. 2322.—English Flora, vol. ii. p. 262.—Hooker, British Flora, vol. i. p. 195.—*Robertsonia hirsuta*, Haworth.—Lindley, Synopsis, p. 71.

β. depilata. Leaves roundish, heart-shaped, smooth on both sides. Don. Lindley, Synopsis, p. 71.

Root fibrous. *Stem* short, bearing a tuft of numerous spreading leaves. *Leaves* evergreen, roundish, ovate, with numerous rather acute teeth, each tooth broad and short, with a narrow cartilaginous edge, the upper surface dark green, smooth and shining, rarely scattered over with hairs, the under side a dull purplish green and hairy, the footstalks much longer than the leaves, linear, tapering from the dilated base, channeled, and mostly very hairy. *Scape* erect, round, about a foot high, much branched, in a spreading somewhat forked paniculated manner, hairy, and viscid. *Flowers* numerous, on short *peduncles*, from the axis of a short linear *bractea*, those arising from the axis of the branches much longer, and the earliest in flower. *Calyx* of five oblong obtuse reflexed segments. *Petals* oblong or oblong elliptic, about as long again as the calyx, white, with yellow spots near the base, and numerous crimson ones to about the middle of the petal. *Stamens* with linear *filaments*, nearly as long as the petals. *Anthers* ovate, of two lobes. *Styles* short, spreading. *Stigmas* small. *Capsule* ovate. *Seeds* numerous, small.

Habitat.—On fragments of rocks at the Gap of Dunloe, near Kilarney, Ireland.—Mr. J. T. Mackay.

Perennial; flowering in May and June.

The variety above quoted is probably not different from *S. Geum*, and indeed it is doubtful if *S. hirsuta* and *S. Geum* are really different species, for not only is it the opinion of De Candolle that they are only varieties of one species, but other Botanists entertain the same views; and the Rev. W. T. Bree, who, as is stated in British Flora, p. 195, has cultivated and studied the Saxifrages very assiduously, says, that it is certainly a hybrid between the preceding and the following.

7. *S. umbrosa*, Linn. (Fig. 686.) *London-pride Saxifrage*, or *None-so-Pretty*. Leaves roundish-ovate, crenated, with a cartilaginous margin, smooth; the footstalks flat, dilated, linear, the margins ciliated; scape with a panicle; calyx segments ovate, very obtuse, reflexed; capsule ovate, superior.

English Botany, t. 663.—English Flora, vol. ii. p. 263.—Hooker, British Flora, vol. i. p. 196.—*Robertsonia umbrosa*, Haworth.—Lindley, Synopsis, p. 71.

β. punctata. Leaves roundish, with sharp tooth-like serratures; fruit stalks elongated.—*S. punctata*, Haworth.

γ. serratifolia. Leaves oblong, ovate, smooth, light green, with deep acute serratures; petioles long.—*Robertsonia serrata*, Haworth.

Root fibrous. *Stem* short. *Leaves* numerous, tufted, spreading in a rosaceous manner, evergreen, smooth, leathery, or somewhat fleshy, roundish ovate, or oblong ovate, obtuse at the apex, and tapering at the base into a broad long flat ribbed footstalk, which has its margins more or less ciliated with long soft woolliness, the margins of the leaves with a narrow cartilaginous border, more or less acutely crenated, or sharply toothed, the terminal one broader and shorter than the rest, a shining green above, paler and dull on the under side. *Scape* mostly solitary, from a few inches to more than a foot high, round, mostly pink, and clothed like the panicle with soft hairs, and more or less glutinous. *Panicle* rather small, with short branches, somewhat racemose. *Flowers* not very numerous, on short very glutinous *peduncles*, arising like the branches from the axis of a linear obtuse *bractea*, of a red colour. *Calyx* of five ovate obtuse at length reflexed segments, fringed with short glandular hairs. *Corolla* of five oblong ovate or spatulate *petals*, of a pale pink colour, with a yellow spot near the base, and more or less dotted with small crimson dots. *Stamens* with linear *filaments*, longer than the petals. *Anthers* ovate, of two cells. *Styles* short, spreading. *Stigmas* small. *Capsule* ovate, of two cells. *Seeds* numerous.

Habitat.—Plentiful on the mountains in the South of Ireland, as at Glengariff, near Bantry, and on Connor cliffs, near Dingle.—*Mr. J. T. Mackay*. *β.* on the summit of Curan Tuhol, the highest mountain in Kerry; mountains of Cunnamara; on Milrea and Croagh Patrick, County of Mayo; on Muckish, one of the highest mountains in Donegal.—*Mr. Templeton* and *Sir W. J. Hooker*. *γ.* Gap of Dunloe, near Killarney.—*Mr. J. T. Mackay*. It is also found in woods in various parts of England, and about Edinburgh and Glasgow, but not really wild.

Perennial; flowering in June.

This is a well known garden flower, common in all parts of the kingdom, from the cottage garden to the crowded city's smoky plot: its extreme power of accommodating its growth to all conditions, even to the small box of soil hung from the window in the most confined parts of the city of London, together with the great beauty of its flowers, have obtained for it the name of *London Pride*. This capability of accommodating itself to such different localities is the more remarkable, as the native situation of the plant is on elevated

mountains, where it enjoys the pure elastic air, untainted with smoke or grime.

Sect. 5. *MICRANTHES*, Tausch. Hort. Canal. fas. 1. De Cand. Prod. p. 4. p. 38. *Stem leafless. Leaves radical, oblong. Calyx half superior. Stigmas nearly sessile. Flowers in terminal heads, or close panicles.*

8. *S. nivalis*, Linn. (Fig. 687.) *Clustered Alpine Saxifrage.* Leaves all radical, obovate, spatulate, tapering into a footstalk, unequally dentato-crenated, the margins hairy, sub-coriateous; scape leafless, terminated by a dense head, or sub-corymbose cluster of flowers; calyx half superior, nearly erect; petals oblong, obtuse, as long as the calyx.

English Botany, t. 440.—English Flora, vol. ii. p. 265.—Hooker, British Flora, vol. i. p. 196.—*Leiogyne nivalis*, Don.—Lindley, Synopsis, p. 68.

Root of numerous branched fibres, from a black fleshy notted stock. *Leaves* all radical, of a somewhat leathery texture, obovate spatulate, or rotundate spatulate, tapering into a broad flat footstalk, very short, or sometimes an inch long, numerous veined, the margins regularly crenato-dentated, or with irregular roundish oblong teeth, of a dark green and smooth above, paler or more generally of a purplish brown beneath, smooth, or mostly downy on the margins and footstalks, and sometimes scattered over with pubescence. *Scape* erect, from three to four inches high, pubescent, especially above, with soft spreading glandular hairs, round, and mostly simple; but we have specimens from Ben Lawers branched from the middle, and Mr. W. Wilson has observed the same in plants grown upon Snowdon. *Inflorescence* a terminal cluster of crowded flowers in a roundish head, or disposed in a loose sub-corymbose manner. *Flowers* few, on short hairy peduncles, with small lanceolate hairy bracteas. *Calyx* half superior, the limb of five ovate nearly erect segments, never reflexed, smooth, or slightly hairy. *Corolla* of five ovate petals, branched with veins, scarcely longer than the calyx, white, green at the points and base. *Stamens* with erect linear filaments and small anthers, of two cells. *Styles* short, with small hemispherical stigmas. *Capsules* rather large, ovate, of two cells, sub-membranous, and veiny, beaks of the persistent styles strongly divaricating.

Habitat.—Rocky places on the mountains in Wales; more frequent on those of Scotland, especially the Breadalbane range.

Perennial; flowering in July and August.

Sect. 6. *NEPHROPHYLLUM*, Gaud. Helv. 3. p. 103. Koch. Flora German et Helvetica. p. 276. *Stem erect, leafy. Leaves lobed, alternate. Bractea in pairs at the base of the peduncles. Calyx half superior, erect, or spreading.*

9. *S. granulata*, Linn. (Fig. 688.) *White Meadow Saxifrage.* Stem solitary, erect, above sub-corymbose; radical leaves on long

footstalks, kidney-shaped, lobato-crenate, those of the stem wedge-shaped, acutely lobed, nearly sessile; petals obovate, oblong, much longer than the calyx; root with granular bulbs.

English Botany, t. 500.—English Flora, vol. ii. p. 269.—Hooker, British Flora, vol. i. p. 197.—*Leiogyne granulata*, Don.—Lindley, Synopsis, p. 67.

Root fibrous, bearing numerous granular bulbs, about the size of a pea. Stem erect, from six to twelve or eighteen inches high, simple, rarely branched below the middle, but mostly towards the top branched in a somewhat corymbose manner, round, and more or less clothed with pubescence, and glutinous. Leaves from the root and lower part of the stem, on long channeled footstalks, downy, and glandular, kidney-shaped, crenated, or cut into acute or obtuse lobes, sometimes doubly crenated, more or less downy, green above, paler beneath, or tinged, of a brownish red colour, those of the stem wedge-shaped, from three to five lobed, sessile, or nearly so, the upper ones and frequently the scales on the branches of the panicle bear in the axis small granular bulbs. Inflorescence a terminal sub-corymbose panicle, more or less branched, mostly few flowered, and sometimes there is only a solitary terminal one. Flowers large, white. Calyx half superior, the limb of five ovate obtuse segments, somewhat spreading, and clothed with glandular hairs. Petals oblong, obovate, several times longer than the calyx, and marked with veins, branched in a palmated manner. Stamens longer than the calyx, with slender nearly erect filaments and yellow two celled anthers. Styles tapering, scarcely spreading. Stigmas large, downy. Capsule large, ovate, veiny, sub-membranous. Seeds very numerous, small, brown, ovate.

Habitat.—Meadows and pastures, banks and hedges; not unfrequent in a sandy or gravelly soil. In many parts of the South of Scotland, but scarcely known in the Highlands; on ditch banks between Baldoyle and Portmarnock; Springhill, near Moneymore, County of Derry, Ireland.

Perennial; flowering in May and June.

This is the most common of our Saxifrages, and grows in great abundance in some parts of the country, increasing rapidly by the numerous bulbs of its roots, as well as those which fall from the stem, which are abortive flowers. The flowers are large, and beautifully veined, and by cultivation they become very double, thus forming a very pretty border flower. The derivation of the name Saxifrage we have already adverted to; and it may be further observed, that it is probable that from this species it obtained its name; for during past ages, when the potency of medicines were judged of by their form and appearance, and further confirmed by astrological pretensions, the signature physicians were at no loss in determining, according to their notions, that the granular bulbs of the roots so much resembled stones, as to indicate by this means the benefit they would afford in the relief, if not the cure, of the disease of stone in the bladder! and as the

white flowers indicated that this plant was under the government of the moon, the roots must not, said the astrologer, be gathered, if their full effects were desired, except at the time of that orb being full. We do not, however, now find that under any circumstances the roots of the Saxifrage are of any material benefit; and what little utility they may be of, is to be attributed to the mucilaginous matter which they contain, which may prove beneficial in an irritable state of the bladder.

10. *S. cernu'a*, Linn. (Fig. 689.) *Drooping Bulbous Saxifrage*. Stem solitary, erect, simple, or branched, the end single flowered; radical leaves on long footstalks, kidney-shaped, five to seven lobed, those of the stem sessile, about three lobed, bearing numerous axillary bulbs; calyx with oblong lanceolate nearly free segments, much shorter than the obovate oblong petals.

English Botany, t. 664.—English Flora, vol. ii. p. 270.—Hooker, British Flora, vol. i. p. 198.—*Leiogyne ceruna*, Don.—Lindley, Synopsis, p. 68.

Root of slender long branched fibres, from the base of a small scaly bulb. *Stem* slender, erect, from three to four inches high, simple, or rarely branched towards the top, and drooping, smooth, or slightly hairy, scarcely glandulous, leafy. *Leaves* from the root and lower part of the stem on slender footstalks, mostly long, smooth, or slightly downy, alternate, kidney-shaped, deeply lobed in a palmate manner, with more or less acute lobes, smooth, bright green, paler beneath, the upper leaves nearly sessile, deeply lobed almost to the base, those near the top of the stem simple, lanceolate, and bearing in their axis numerous small granular bulbs (abortive flowers). *Flowers* solitary, terminal, drooping, large for the size of the plant. *Calyx* in five ovate lanceolate somewhat downy and nearly free segments. *Corolla* of five ovate oblong obtuse or notched petals, beautifully veined in a palmate manner, much longer than the calyx. *Stamens* with slender filaments, and small two celled anthers, yellow. *Style* imperfect. *Capsule* rarely perfected.

Habitat.—Dry rocks on the highest Scotch mountains of the Breadalbane range. Ben Lawers and Craigalleach, but not common.

Perennial; flowering from June to August.

11. *S. rivularis*, Linn. (Fig. 690.) *Alpine Brook Saxifrage*. Stem weak, ascending, branched, few flowered; radical leaves on slender footstalks, smooth; from three to five lobed, the upper ones of the stem lanceolate; calyx half superior, of five ovate segments; petals ovate, scarcely longer than the calyx; styles very short; stigmas capitate.

English Botany, t. 2275.—English Flora, vol. ii. p. 271.—Hooker, British Flora, vol. i. p. 198.—*Leiogyne rivularis*, Don.—Lindley, Synopsis, p. 68.

Root with somewhat creeping underground stems, and putting out numerous slender fibres. *Stems* slender, weak, ascending, mostly downy and simple, or slightly branched at the top, from one to two



689

Saxifraga cernua.



690

Saxifraga rivularis.



691

Saxifraga tridactylites



692

Saxifraga hypnoides.



693

Saxifraga hypnoides
β angustifolia.



694

Saxifraga hypnoides γ elongella

inches long. *Leaves* from the root numerous, spreading, on long slender footstalks, mostly smooth, sometimes downy, kidney-shaped, from three to five deep lobes, ovate, acute, the middle one larger than the rest, smooth, bright green, somewhat succulent, the leaves of the stem in the upper part ovate lanceolate. *Flowers* terminal, solitary. *Calyx* half superior, the limb in five ovate erect segments, smooth. *Corolla* of five ovate *petals*, white, scarcely longer than the calyx. *Stamens* with simple *filaments* and two celled *anthers*, "curiously reticulated or dotted." *Style* very short. *Stigmas* capitate. *Capsule* large for the size of the plant, ovate, pale green, sub-membranous, awned at the apex, with short styles, and widely opening its terminating valves.

Habitat.—Wet rocks, and the sides of alpine rivulets on the mountains of Scotland; rare. Near the summit of Ben Nevis and Ben Lawers, but rare. Plentiful on Loch-na-gar, in Forfarshire.—*Mr. Drummond*. Loch Rannoch.—*Mr. Somerville*.

Perennial; flowering from July to September.

The two last species are both natives of the mountains, and afford an admirable illustration of the adaptation of the various forms of plants to their different places of growth. The *S. rivularis* is found on the margins of the mountain rills or wet rocks, and in fact flourishes only where there is an abundant supply of moisture; it, therefore, has fibrous roots and creeping stems, perfects its flowers, forms large capsules, and is plentifully supplied with good seeds: thus by the double means of its creeping stems and seeds securing its further increase; but the *S. cernua*, as it grows only on dry rocks and barren places, exposed to all the vicissitudes of heat, cold, moisture, and drought, other provisions for the purpose of its propagation, would seem *a priori* necessary; and such we find to be the case; for the roots, it will be seen, are long and fibrous, to penetrate the crevices of the rocks, and twine amongst loose stones, and are also furnished with the means of forming bulbs on their roots, which not only are stores to supply the plant with nutriment when needed, but also to form separate plants. The stems are, moreover, provided with a considerable number of small bulbs in the axis of the upper leaves, which are scaly abortive flowers, and these, when falling upon the ground, have the power of putting out roots and stems, and by this means also is the species propagated; so that although the circumstances of the situation of growth render it doubtful whether it might perfect its seeds, it, like its companions on the mountain, is secured by the same double means of propagating its species, though attained in a very different way. Other species of Saxifrage are also provided with the same means of increase as the *S. granulata*, *S. bulbifera*, &c.; and in various species of grasses the same ends are attained, but by somewhat different means; but all point out the infinite wisdom, and the incomprehensible power of that mighty Being, the Creator of all things, who "causes the bud of the

tender herb to spring forth;" and who, after he had created grasses, herbs, and trees, "saw that it was good." So that the Botanist, in his researches on the mountain top, the hill, the valley or the plain, the banks of rivers or the margins of the rippling streams, will find all the objects of his research, from the humblest weed to the majestic tree, the splendid flower, or grateful fruit, proclaiming the majesty and might of Him who said, "Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself upon the earth; and it was so."

12. *S. tridactylites*, Linn. (Fig. 691.) *Rue-leaved Saxifrage*. Stem solitary, erect, simple, or much branched; viscid with glandular hairs, leafy; peduncles single flowered; root leaves on broad footstalks, simple, or from three to five-cleft, those of the stem sessile, simple, or cleft; calyx superior, of five short obtuse lobes; capsule sub-truncated, ovate.

English Botany, t. 501.—English Flora, vol. ii. p. 271.—Hooker, British Flora, vol. i. p. 198.—Lindley, Synopsis, p. 68.

Root small, tapering, with branched fibres. *Stem* erect, simple, or mostly in a paniculated manner, leafy, red, rarely green, and more or less clothed with short glandular hairs, and viscid, especially towards the top, from one to four or five inches high, but very variable in its luxuriance. *Leaves* fleshy, alternate, simple, linear, or cleft into three or five lobes in a palmated manner, the upper ones sessile, the lower with flat footstalks, of variable lengths, clothed more or less thickly with short glandular hairs. *Flowers* on simple slender erect pedicles, small, pure white. *Calyx* nearly superior, of five short erect ovate acute segments, hairy and viscid. *Petals* obovate, small, rather longer than the calyx. *Stamens* on slender simple filaments, shorter than the corolla. *Anthers* round, yellow, of two cells. *Styles* short. *Stigmas* small, downy. *Capsule* roundish, ovate, obtuse, nearly truncated at the top, two celled, many seeded.

Habitat.—Walls, rocks, and dry places; common.

Annual; flowering in May and June.

Sect. 7. *DACTYLOIDES*, Tausch. Hort. Canal. fasc. 1. De Cand. prod. 4. p. 23. *Stem* with numerous persistent leaves at the base.

Leaves alternate, plane, entire, or variously lobed, (often on the same plant), ciliated with jointed hairs. *Scape* annual, leafy, or leafless. *Calyx* about half superior, erect, or spreading.

13. *S. hypnoides*, Linn. (Fig. 692.) *Mossy Saxifrage*. Stem at the top crowded with from three to five-cleft leaves, the lateral spreading; branches with simple linear or three-cleft leaves, all bristle pointed, and more or less fringed with hairs; calyx with ovate lanceolate pointed segments; petals obovate or oblong, much longer than the calyx, with three or palmated veins.

α. gemmifera, Ser. Leaves of the trailing shoots undivided, rarely lobed, sometimes with axillary buds.

S. hypnoides, Linn. English Botany, t. 454.—English Flora, vol. ii. p. 277.—Hooker, British Flora, vol. i. p. 199.—Lindley, Synopsis, p. 69.—D. Don in Trans. of Linn. Soc. v. 13, p. 447, and *S. condensata* in p. 448.

β. angustifolia, Haw. (Fig. 693.) Leaves of the trailing shoots undivided, or three lobed, the middle lobed, often three ribbed, without axillary buds.

Hooker, Brit. Fl. v. i. p. 199. var. *β.* and *γ.*—*S. platypetala*.—English Botany, t. 2276.—D. Don in Trans. of Linn. Soc. v. 13, p. 422.—English Flora, vol. ii. p. 276.—Lindley, Synopsis, p. 69.—*S. hirta*, Don.—English Botany, t. 2291.—D. Don in Trans. of Linn. Soc. v. 13, p. 421.—Lindley, Synopsis, p. 69.—English Flora, vol. ii. p. 275.

γ. leptophylla, Haw. Leaves of the trailing shoots deeply three to five-cleft, the lobes linear lanceolate, and widely spreading; scape few flowered.

Hooker, British Flora, vol. i. p. 199.—*S. leptophylla*, Persoon.—D. Don in Trans. of Linn. Soc. v. 13, p. 450.—English Flora, vol. ii. p. 279.—Lindley, Synopsis, p. 70.

δ. elongell'a, Ser. (Fig. 694.) Leaves nearly smooth, three-cleft, wedge-shaped, the lobes scarcely spreading; scape single, or few flowered; calyx of narrow pointed segments.

S. elongella, Smith.—English Botany, t. 2277.—D. Don in Trans. of Linn. Soc. v. 13, p. 449.—English Flora, vol. ii. p. 279.—Hooker, British Flora, vol. i. p. 200.—*S. hypnoides*, var. *γ.*—Lindley, Synopsis, p. 70.—*S. affinis*. Don in Trans. of Linn. Soc. v. 14, p. 418.—English Flora, vol. ii. p. 275.—Hooker, British Flora, vol. i. p. 200.—Lindley, Synopsis, p. 69.—*S. denudata*. Don in Trans. of Linn. Soc. v. 13, p. 424.—English Flora, vol. ii. p. 277.—Hooker, British Flora, vol. i. p. 200.—Lindley, Synopsis, p. 68.

Root fibrous. *Stem* long, slender, trailing, scattered over with leaves, which now and then put out roots from their axis, terminating in a dense tuft of crowded leaves, from amidst which arises the scape, and mostly several lateral branches, long or short, which spread around. *Leaves* of a bright green, somewhat fleshy, and more or less scattered over or fringed on the margins, with soft pale jointed spreading hairs, the lower leaves on flat channeled footstalks, mostly dilated at the base, and cut into three or five more or less linear lobes, but always with a sharp bristly point, by which in all its varieties it is distinguished from *S. cespitosa*; the leaves of the lateral trailing shoots are mostly simple, linear, sometimes three, rarely five-cleft, and bearing in their axis small buds, and the lobes are short and broad, or long and narrow, and more or less hairy. *Scape* erect, from one to four inches high, round, smooth or hairy, naked, or bearing one or two distant leaves, sometimes several at the base, and either simple or divided, the hairs are either simply jointed, or those towards the top have a glandular

point. *Inflorescence* a branched panicle, of a few erect or drooping flowers, rarely only a solitary flower, the branches long and slender, or short and stout, with one or two linear *bracteas* at the base. *Calyx* half superior or more, the limb of five ovate pointed or ovate lanceolate erect segments, more or less clothed with short glandular hairs. *Corolla* of five obovate or oblong white petals, obtuse, or rarely (not permanently) notched, marked with three veins, the two lateral sometimes branched, but united at the base in a palmated manner, and at least as long again as the calyx segments. *Stamens* on slender *filaments*, five longer than the other, *anthers* yellow, roundish, of two cells. *Styles* scarcely spreading. *Stigmas* spatulate, somewhat downy. *Capsule* broadish, ovate, obtuse, many seeded.

Habitat.—*α*. Frequent in mountainous districts, especially in a limestone country. *β*. Frequently with the former in Wales, Scotland, and Ireland. *γ*. Welsh mountains.—*Mr. M'Nab*. *δ*. Mountains of Scotland and Ireland.—*Mr. J. T. Mackay* and *Mr. G. Don*.

Perennial; flowering from May to July.

This is an extremely variable species, as will be seen from the above descriptions; indeed no two authors seem to agree as to what are the limits of the species, nor are we by any means certain that the above arrangement will be found unvariable; but as all the other parts of the plant, with the exception of the apex of the leaves, and their lobes being bristle pointed, are variable, but without being prominently so, we have thought it the most simple plan to place them all under one species, until we have a more intimate knowledge of them.

It is frequently cultivated in gardens as a border flower, or on rock work, forming close tufts of evergreen leaves, and generally flowers freely for several months during the summer.

14. *S. latevi'rens*, Don. (*Bright Green Alpine Saxifrage*.) "Trailing shoots procumbent, elongated; leaves five or three parted; segments linear, acute; calyx segments lanceolate, mucronate; petals spatulate, emarginate."—*Hooker*.

D. Don in Trans. of Linn. Soc. v. 13. p. 451.—English Flora, v. 2, p. 280.—*Hooker*, British Flora, v. 1, p. 200.—*Lindley*, Synopsis, p. 70.

"Herb of a very bright green, densely tufted, and very smooth before flowering; afterwards loosely spreading, with long trailing shoots, besprinkled with long hairs, without axillary buds. *Stems* few, erect, smooth, three inches high, bearing a few leaves, and about three flowers, rarely only one. The radical leaves have five segments, those of the shoots three, all linear, acute, recurved at the point, those on the lower part of the stem are five-cleft, on the upper undivided, lanceolate, and pointed. *Flowers* white, bell-shaped, drooping in the bud. *Flower stalks* and *calyx* downy and viscid; segments of the latter lanceolate, three ribbed, with recurved points. *Petals* with straight simple green ribs, united above the base."—*Smith*.



695

Saxifraga caespitosa.



696

Saxifraga caespitosa β *decipiens.*



697

Saxifraga pedatifida.



698

Saxifraga pedatifida β *magna.*



699

Saxifraga muscoides



700

Saxifraga muscoides β *moschata.*

Habitat.—Lofty mountains of Scotland, in Angus-shire, Aberdeen-shire, and north of Loch Lomond.—*Mr. G. and D. Don.*

Perennial.

Of this plant but little more than the above description appears to be known. Smith speaks of it as being “a very distinct and elegant species, according to Mr. Don, whose description and characters,” he further adds, “I have adopted;” and Mr. W. Wilson, in Hooker’s British Flora, says, “The recurved points of the segments of the leaves may possibly distinguish this as a species; but at present I think its claims very doubtful.” Such also appears to be the opinion of De Candolle.

15. *S. cæspitosa*, Linn (Fig. 695.) *Tufted Alpine Saxifrage*. Stem at the top crowded with from three to nine-cleft petiolated leaves, the lateral spreading branches, with three-cleft leaves, the lobes elliptic, lanceolate, obtuse, or slightly mucronated; scape slightly leafy, from three to nine flowered; calyx of obtuse segments; petals obovate or oblong, obtuse, with three palmated veins.

α. compacta. Leaves closely imbricated; scape from one to two inches high.

S. cæspitosa, Linn.—English Botany, t. 794.—English Flora, vol. ii. p. 273.—D. Don in Trans. of Linn. Soc. vol. 13, p. 428.—Hooker, British Flora, vol. 1, p. 201.—Lindley, Synopsis, p. 69.—*S. Grænlændica*, Gunn.—Norveg. vol. 2, p. 80, t. 7, f. 1.—*S. hypnoides*, var. *β. villosa*.—De Cand. Prod. p. 4, p. 32.

β. decipiens. (Fig. 696.) Leaves loosely imbricated; scape from five to six inches high.

Hooker, British Flora, vol. 1, p. 201.—Lindley, Synopsis, p. 69.—*S. decipiens*, Ehrh.—*S. palmata*.—English Botany, t. 455.—*S. hypnoides*, var. *θ. villosa*.—De Cand. Prod. p. 4, p. 32.

γ. incurvifolia. Leaves with lanceolate obtuse incurved segments; petals roundish, emarginate.

S. incurvifolia.—Don in Trans. of Linn. Soc. v. 13, p. 423.—English Flora, vol. ii., p. 276.—Hooker, British Flora, vol. i. p. 200.—Lindley, Synopsis, p. 69.—*S. hypnoides*, var. *θ. villosa*.—De Cand. Prod. p. 4, p. 32.

Roots fibrous. *Stems* trailing with distant leaves, but crowned with a more or less densely crowded and imbricated tuft of leaves, from the midst of which arises the solitary scape, and laterally, or trailing leafy spreading branches; in *β.* they are short and erect. *Leaves* of the stem on flat somewhat channeled footstalks, of greater or less length, and more or less hairy, cleft into from three to nine elliptic lanceolate obtuse lobes, spreading, or in *γ.* incurved, never pointed, as in *S. hypnoides*; sometimes the apex is terminated by a mucro, but it differs in no respect from the hairs in other parts of the leaf, and the lobes are more or less ribbed, the lateral ones with two, and the middle with three

veins. *Scape* erect, variable in length, in α . seldom more than two inches high, and bearing from two to three or four flowers; in β . much longer, and branched at the top in a paniculated manner, with five or six or more flowers, and mostly scattered upon the scape are several palmated leaves, and like the rest of the plant more or less clothed with hairs, the *pedicles* short, mostly glandulous. *Calyx* half superior, the limb of five broad obtuse smooth segments, the base or tube more or less clothed with glandular hairs. *Petals* white, with a greenish tinge, obovate, or oblong, three ribbed, the lateral ones not branched, as in *S. hypnoides*, as long again or longer than the calyx. *Stamens* with simple slender *filaments*, bearing ovate yellow two celled *anthers*, the *styles* short, thick, somewhat spreading. *Stigmas* ovate, downy. *Capsule* broadly ovate, many seeded.

Habitat.—Rocks in mountainous districts of Wales, Ireland, and Scotland. α . Rocks of Twll dŷ and Cwm. Idwel, North Wales.—*Mr. Griffith*. Brandon mountain, Kerry, Ireland.—*Mr. J. T. Mackay*. β . Cwm. Idwel, North Wales.—*Mr. Griffith*. On Galty mountains, Tipperary, Ireland.—*Mr. J. T. Mackay*. γ . Brandon mountain, Ireland.—*Mr. J. T. Mackay*.

Perennial; flowering in May and June.

16. *S. pedati'fida*, Ehrh. (Fig. 697.) *Pedatifid-leaved Saxifrage*. Lower leaves and those of the branches with very long flat channeled footstalks, deeply three-cleft, the central one linear lanceolate, acute, the lateral ones bifid, lanceolate, acute, spreading; panicle sub-cymose; calyx half superior, its lobes as long as the tube.

English Botany, t. 2273.—English Flora, vol. ii. p. 280.—Hooker, British Flora, vol. i. p. 202.—Lindley, Synopsis, p. 70.—D. Don in Trans. of Linn. Soc. vol. 13, p. 414.—*S. geranoides*, Linn. var. δ . *pedatifida*, Ser.—De Cand. Prod. par. 4, p. 30.

β . *magna*. (Fig. 698.) Flowers large, solitary, or few on a branched scape; leaves less divided.

Root fibrous. *Stem* long, with distant leaves, crowned at the top with a tuft of numerous leaves and barren trailing stems, at first erect. *Leaves* numerous, crowded, large, on long footstalks, flat, somewhat channeled, spreading, deeply cut into three spreading lobes, the central one linear lanceolate, acute, or cut into three lobes, the two lateral lobes deeply cleft, and sometimes each lobe is again cut into three lobes, all of which are narrow, linear, sometimes broadly lanceolate, and like the rest of the plant more or less clothed with rather long hairs, jointed, soft, and spreading. *Flowering stem* from five to six inches high, round, somewhat hairy, branched, reddish, terminating mostly with numerous flowers in a sub-cymose manner, the leaves in the lower part of the stem at least three lobed, in the upper mostly simply linear. *Flowers* large, white, spreading. *Calyx* half superior, in five lanceolate erect or somewhat spreading segments, as long as the tube, often longer, and more or less clothed with short hairs, tipped with

viscid globose glands, as is the tube and pedicles. *Petals* oblong, obovate, three veined, the lateral veins rarely branched. *Stamens* with erect simple slender *filaments*, often reddish. *Anthers* small, ovate yellow. *Styles* erect, at length spreading. *Stigmas* ovate, downy. *Capsule* large, broadly ovate, two celled, many seeded.

Habitat.—Near the head of Clova on rocks, Angussshire, Scotland.—*Mr. G. Don*.

Perennial; flowering in May.

This is much the largest of any British specie in this division of Saxifrages, the flowers are often the size of *S. granulata*. It is readily distinguished from the others by its lanceolate segments of the calyx, being as long as the germen, or longer, and mostly as long as the capsule, and is a much larger plant.

17. *S. muscoides*, Wulf. (Fig. 699.) *Mossy Alpine Saxifrage*. Stem cœspitose, densely crowded with simple linear obtuse or three-cleft leaves; flowering stem nearly naked, single flowered, or branched and few flowered; calyx nearly superior, its segments obtuse, rather shorter than the oblong obtuse petals.

α. microphylla, Gaudin. Leaves smooth, linear, entire, rarely three-cleft; flowering stem short, about three flowered.

S. moschata.—English Botany, t. 2314.—*S. pygmaea*, Haworth.—Lindley, Synopsis, p. 68.—D. Don. in Trans. of Linn. Soc. v. 13, p. 439.—English Flora, vol. ii. p. 273.—*S. muscoides*, Wulf.—*β. Hooker*, British Flora, vol. i. p. 202.—*α. microphylla*.—De Cand. Prod. p. 4, p. 26.—*δ. integrifolia*, Koch.—Flora Germania et Helvet, p. 272.

β. moschata, Gaudin. (Fig. 700.) Leaves hairy, viscid, more or less wedge-shaped, three-cleft, or entire.

S. moschata.—Wolf. in Jacq. mis. 2, p. 128, t. 21, f. 21.—*S. muscoides*.—D. Don. in Trans. of Linn. Soc. v. 13, p. 437.—English Flora, vol. ii. p. 272.—Lindley, Synopsis, p. 68.—*α. Hooker*, British Flora, vol. i. p. 202.—*λ. moschata*.—De Cand. Prod. p. 4, p. 26.—*ι. moschata*.—Koch. Flora Germania et Helvet, p. 272.

Root small, fibrous. *Stem* very short, crowded in a dense imbricated manner with simple linear or wedge-shaped three lobed leaves, deep green, with a roundish obtuse point, single ribbed, divided upwards into three branches, smooth or fringed, or scattered over with glandular hairs, somewhat fleshy, the branches short, rigid, erect, always with simple linear leaves. *Flowering stem* erect, mostly scattered over with leaves, simple, terminated with a solitary flower, or branched, and about three flowered, more or less clothed with short glandular hairs, as well as the germen and calyx, the *bractea* short, small, linear. *Calyx* nearly superior, in five roundish oblong erect or spreading segments. *Petals* yellowish green, linear, oblong, three ribbed, longer than the calyx. *Stamens* with simple slender *filaments* and yellow ovate *anthers*, of two cells. *Styles* short, erect, at length spreading. *Stigmas* ovate, downy. *Capsule* roundish ovate, two celled, many seeded.

Habitat.—Rocky mountains; very rare. α . Highlands of Scotland, (?)—*Mr. J. Don*. β . On Mountains above Ambleside, Westmoreland.—*Hudson, Mr. D. Don*.

Perennial; flowering in May.

This species is common on the mountains of Switzerland, Savoy, and Italy, and we have specimens from those of Greece, which are much more pubescent than any other specimen that we have seen, but are not otherwise different. It grows in dense tufted patches, the leaves very much crowded on the stem in an imbricated manner.

GENUS IX. DIANTHUS.—LINN. *Pink*.

Nat. Ord. CARYOPHYLLÆÆ. JUSS.

GEN. CHAR. *Calyx* tubular, five toothed, with from two to four opposite imbricated *scales* at the base. *Petals* five, contracted at the mouth into a narrow claw. *Stamens* ten. *Styles* two. *Capsule* of one cell, four valved at the apex. *Seeds* peltate, compressed on one side, concave on the other.—Name from $\Delta\iota\omicron\varsigma$, *divine* or *heavenly*; and $\alpha\gamma\theta\omicron\varsigma$, a *flower*; so named on account of the pre-eminent beauty and fragrance of the flowers.

Sect. 1. ARMERIASTRUM. *Ser.* De Cand. Prod. p. 1, p. 355.

Flowers crowded into a head, or corymbose, sessile, or pedunculated. * *Scales* of the *calyx* lanceolate, acute; *calyx* striated, villous.

1. *D. Armeria*, Linn. (Fig. 701.) *Deptford Pink*. Flowers fasciculated; scales of the calyx and bractea lanceolate, subulate, herbaceous, downy, as long as the downy striated tube of the calyx; leaves linear, awl-shaped, ribbed, and downy.

English Botany, t. 317.—English Flora, vol. ii. p. 286.—Hooker, British Flora, vol. i. p. 203.—Lindley, Synopsis, p. 44.

Root small, tapering, branched. *Stem* erect, from one to two feet high, round, downy, branched above, leafy, stiff, and rigid. *Leaves* linear, awl-shaped, opposite, united at the base with membranous edges into a short tube, rough and downy, with a stout mid-rib, and one or two ribs on each side, erect, with an obtuse point, the lower leaves broader and spreading. *Inflorescence* terminal fasciculated clusters, mostly of numerous crowded small pink and white flowers. *Pedicles* short, *bractea* long, slender, awl-shaped, downy and ribbed, as well as the *scales* at the base of the calyx, which are taper pointed, as long as the calyx, rarely shorter. *Calyx* nearly an inch long, the tube numerous striated and downy, the limb of five nearly erect almost awl-shaped teeth. *Petals* five, with a long narrow claw, the *limb* ovate, more or less toothed on the margin, rose colour, with numerous white dots scattered over them, scentless, seldom more than one or two expanded in the same cluster at one time. *Stamens* with linear *filaments*, five longer than the others, all united with the petals into a ring



701

Dianthus armeria.



702

Dianthus prolifer.



703

Dianthus caryophyllus.



704

Dianthus deltoides.



705

Dianthus caesiuss.



706

Saponaria officinalis.

at the base of the germen. *Stigmas* nearly sessile. *Seeds* numerous, small, in a one celled linear oblong *capsule*, smooth, bursting at the apex with four lanceolate teeth. *Seeds* numerous, compressed, and finely dotted.

Habitat.—Pastures and hedges in various parts of England and Scotland, especially in a gravelly soil, but not very common.

Annual; flowering in July and August.

This is not a very ornamental plant; the flowers are small, but very beautiful and delicately spotted, only one or two expanding at the same time in a cluster, and they are without odour. It is not unfrequent in almost all parts of the Continent, and De Candolle mentions a variety bearing a solitary flower.

**** Scales of the calyx ovate, membranous; calyx smooth.**

2. *D. proli'fer*, Linn. (Fig. 702.) *Proliferous Pink*. Flowers clustered, capitate; scales of the calyx ovate, membranous, longer than the tubes, and enveloping them; stem smooth; leaves rough on the edges; seeds smooth.

English Botany. t. 956.—English Flora, vol. ii. p. 286.—Hooker, British Flora, vol. i. p. 203.—Lindley, Synopsis, p. 44.

Root small, tapering, and fibrous. *Stems* solitary, or numerous from the same root, erect, simple or branched, roundish, smooth, from six to eighteen inches high, leafy. *Leaves* opposite, united at the base, the lower ones into a short tube, linear, erect, or spreading, with a mid rib and one or two lateral ones, smooth, except the margins and mid-rib being rough, with small teeth, the lower leaves broader and spatulate. *Inflorescence* terminal close clusters, in an ovate head, mostly of numerous flowers, enveloped in dry pale brown smooth ovate membranous *scales*, the outer ones pointed, the inner obtuse, with two or three small points. *Calyx* with a slender furrowed tube, smooth, the limb of five lanceolate teeth. *Corolla* of five small deep rose coloured *petals*, with long tapering *claws*, and inversely heart-shaped *limb*. *Stamens* with slender *filaments*, of variable lengths. *Anthers* small, ovate, two celled, purplish. *Styles* about as long as the *stigmas*. *Capsule* one celled, linear, oblong, smooth, bursting at the apex with four valves. *Seeds* numerous, black, smooth.

Habitat.—Gravelly pastures in England; rare. Selsey Island, Sussex; meadows between Hampton Court and Teddington, near Norwich; and near Hanby Castle, Worcestershire; Hyde, Isle of Wight.—Rev. C. E. Babington.

Annual; flowering in July.

This is readily distinguished from all other of our British species by its ovate head of flowers, enveloped in its pale membranous scales, but, like the last, it is scentless, and only one flower is expanded at a time. It is frequent on the Continent, and is nearly allied to *D. velutinus*, Guss, which has the stem between the leaves downy, and the seeds

muricated. It is readily cultivated in the garden, and when in a close cluster is rather ornamental.

Sect. 2. *CARYOPHYLLUM*, Ser. De Cand. Prod. 1, p. 357. *Flowers paniculated, or solitary.*

3. *D. Caryophyllus*, Linn. (Fig. 703.) *Clove Pink, Carnation, or Clove Gillyflower.* Stem branched; flowers solitary; scales of the calyx four, ovate, sub-mucronate, four times shorter than the calyx tube; leaves linear, subulate, smooth, glaucous, channeled; petals broad, crenated, smooth.

English Botany, t. 214.—English Flora, vol. ii. p. 287.—Hooker, British Flora, vol. i. p. 203.—Lindley, Synopsis, p. 44.

Root rather woody, with branched fibres. *Stems* several from the same root, smooth and glaucous, like the rest of the plant, somewhat angular, branched in a paniculated manner above, each branch terminated with a solitary, rarely with two flowers. *Leaves* opposite, linear, awl-shaped, channeled, smooth, except being somewhat toothed near the base, keeled, but without lateral ribs. *Flowers* pale pink, fragrant. *Scales* of the calyx four, roundish ovate, with an awl-shaped point, about four times shorter than the tube of the calyx, the two outer ones smallest, and more distinctly ribbed than the others. *Calyx* about an inch long, cylindrical, smooth, finely striated, the limb of five lanceolate erect teeth. *Petals* five, wedge-shaped, tapering into a slender long *claw*, the *limb* unequally toothed, at the top smooth. *Stamens* with short simple *filaments*, of unequal lengths. *Anthers* ovate, yellow, often abortive. *Styles* as long as the calyx, with spreading *filaments*, long and downy. *Capsule* smooth, ovate, mostly many seeded.

Habitat.—Old buildings and ruined walls, probably naturalized; about Norwich, old arch of Westonhanger, on the Castles of Deal, Sandown, Rochester, &c.

Perennial; flowering in July.

This is generally considered the parent of the numerous varieties of carnations of our gardens; it is, however, so altered by cultivation, and intermixed with other species, that no one seeing it so insignificant in appearance in a wild state, when compared with the many splendid and large varieties that are now grown in our gardens, would take them to be the same plant.

The Carnation, as a garden flower, has, from almost time immemorial, been of considerable value; its foliage is evergreen, and is more cheerful and fresh looking during the winter than the summer season. The flowers are very beautiful, and many of the varieties are extremely fragrant; it is easy of cultivation in a rich loamy rather sandy soil, and is propagated either by layers or cuttings, or by seeds: when the same species is wished to be propagated, it must be by the former method, for the seeds rarely produce the same flower as the parent, so

that by this method is obtained a great variety, but generally great numbers are obliged to be grown before a new or good flower is produced that is worth cultivation, for already the esteemed varieties amount to about four hundred.

As a florist's flower it is one of the greatest favourites both of our own country, Germany, Italy, and France, and is grown both in pots and in beds, requiring only to be protected from the extremes of heat and cold; in winter a frame matted over is sufficient, and in summer an awning of canvas, &c. to shade them from too great heat of the sun; this, however, is not necessary, except when they are in bloom; when also the florist has many and nice operations to perform, in the management and arrangement of his blooms, for the descriptions of which we must refer to the various Florists' Works and Magazines that are constantly being published. It may be useful, however, to state that florists distribute Carnations into three different classes, flakes, bizarres, and picotees. 1. *Flakes* are marked only with two colours, and these in large stripes going through the petals. 2. *Bizarres* (a French word, signifying odd, whimsical, fantastical,) are variegated in an odd irregular manner, in spots or stripes, and with no less than three colours. 3. *Picotees* (from the French word *piquette*, pricked or spotted,) are white, and spotted over with scarlet, red, purple, &c. These classes are again sub-divided according to their colour, as the scarlet flake, the pink flake, yellow flake, &c. Flakes are not so much esteemed as the Bizarres. The Picotees are the smallest flowers, with the edge of the petals serrate, and are generally considered more hardy than the others.

4. *D. deltoides*, Linn. (Fig. 704.) *Maiden Pink*. Stem decumbent at the base, branched, rough, with pubescence; flowers solitary; scales of the calyx about two, ovate-acuminate, half as long as the calyx; leaves linear lanceolate, narrow, acute, the lower wider and obtuse; petals smooth, obovate, toothed.

English Botany, t. 61.—English Flora, vol. ii. p. 288.—Hooker, British Flora, vol. i. p. 204.—Lindley, Synopsis, p. 44.

β. *glaucus*. Leaves glaucous; petals nearly white, with a purple circle near the base.

English Flora, vol. ii. p. 288.—Hooker, British Flora, vol. i. p. 204.—Lindley, Synopsis, p. 44.—*D. glaucus*, Linn.

Root somewhat woody, branched. *Stems* mostly numerous, tufted, decumbent at the base and spreading around, branched alternately, somewhat angular, and thickly clothed with short pubescence, sometimes only slightly so. *Flowering stems* erect, from three to twelve inches high. *Leaves* opposite, united at the base, rough, with close pubescence, and finely serrated on the margin, the upper ones narrow, linear lanceolate, with an acute point, the lower wider, shorter, with an obtuse point. *Flowers* solitary, terminal. *Scales* of the calyx two, rarely four, ovate acuminate, the margins membranous, the point

herbaceous, about half as long as the smooth finely striated tube of the *calyx*, its teeth lanceolate, finely ciliated on the margin, or smooth. *Petals* five, smooth, obovate, tapering into a narrow claw, the margin unequally toothed, a paler or deeper rose colour, with a purplish circle round the mouth. *Stamens* on slender *filaments*, as long as the calyx. *Anthers* oblong. *Styles* with linear downy stigmas, as long as the stamens. *Capsules* oblong, single celled, and many seeded.

Habitat.—Borders of fields, dry banks, and hedges, especially in a sandy or gravelly soil; in England and Scotland, extending as far north as Ross-shire. *β. glaucus* in King's Park, Edinburgh.

Perennial; flowering in July and August.

5. *D. cæsius*, Smith. (Fig. 705.) *Mountain Pink*. Stems cæspitose, mostly single flowered; scales of the calyx four, roundish acuminate, about one-fourth as long as the calyx; leaves glaucous, linear, obtuse, the margins rough; petals obovate, unequally jagged, bearded.

English Botany, t. 62.—English Flora, vol. ii. p. 288.—Hooker, British Flora, vol. i. p. 204.—Lindley, Synopsis, p. 44.

Root woody, with branched fibres. The whole plant of a pale glaucous green. *Stems* numerous, the barren ones very leafy, and cæspitose, procumbent, the flowering stems erect, from four to six inches high, angular, smooth, striated, very rarely bearing more than a solitary terminal flower. *Leaves* opposite, united, linear lanceolate, with an obtuse point, smooth, except the margin being rough, with minute teeth, the lower leaves wider than those of the flowering stems. *Scales* of the calyx four, roundish ovate, with a short acuminate point, about four times shorter than the calyx tube. *Calyx* smooth, finely striated, the teeth erect, lanceolate, obtuse, with a narrow membranous margin. *Petals* five, obovate, more or less bearded, tapering into a long narrow claw, pink, the margin unequally jagged. *Stamens* with slender *filaments*, nearly as long as the calyx. *Anthers* small, ovate. *Styles* with downy linear stigmas, longer than the petals.

Habitat.—On dry limestone rocks; very rare. At Cheddar, Somersetshire.

Perennial; flowering in June and July.

The flowers of this species are very large for the size of the plant, and are very fragrant; and it, like the Maiden Pink, forms a very pretty border flower when grown in thick tufts, and flourishes very well, but especially on rock work, few plants surpassing them in the beauty and delicacy of their flowers; and well might the poet rank the Maiden Pink amongst his choicest flowers of the grove.

"The pride of every grove I chose,
The violet sweet and lily fair,
The dimpled pink, and blushing rose,
To deck my charming Chloe's hair."

Prior.

The Pinks of our gardens, of which there are already enumerated some hundreds of varieties, are probably derived from several species,

as the *D. deltoides*, *D. casius*, *D. plumarius*, *D. Armeria*, &c.; but as a florist's flower, the Pink is of much more modern introduction than the Carnation: they are more hardy than Carnations, but require a similar mode of cultivation and treatment when in flower. They are classed under different heads, as 1. The pheasant's eye, which is said to have sprung from *D. plumarius*. 2. The cobs, which are a large sort, and appear intermediate between Pinks and Picotee Carnations. 3. The early reds, which are smaller than cobs, but larger than pheasant's eyes, and are probably produced from cobs and *D. Armeria*, or *D. deltoides*. Of these there are a great number of varieties, indeed the Paisley growers in Scotland enumerate of pheasant's eyes alone more than three hundred, and of the others almost an equal number. They are an extremely beautiful tribe of plants, and the ingenuity displayed by the cultivators of them in bringing them to such a high degree of perfection, is worthy the greatest encouragement and praise.

GENUS X. SAPONARIA.—LINN. Soapwort.

Nat. Ord. CARYOPHYLLÆ. JUSS.

GEN. CHAR. *Calyx* tubular, five toothed, naked at the base. *Petals* five, contracted at the mouth into a narrow claw. *Stamens* ten. *Styles* two. *Capsule* of one cell, four valved. *Seeds* roundish, kidney-shaped.—Named from *Sapo*, soap; on account of some of the plants of the genus having been used instead of soap.

1. *S. officinalis*, Linn. (Fig. 706.) *Officinal Soapwort*. Flowers fasciculato-corymbosa; calyx cylindrical, smooth; petals notched, crowned at the throat; stem erect; leaves oblong, lanceolate.

English Botany, t. 1060.—English Flora, vol. ii. p. 284.—Hooker, British Flora, vol. i. p. 203.—Lindley, Synopsis, p. 45.

Root stout, somewhat tapering, and branched, with numerous creeping underground stems. *Stem* erect, from one to near three feet high, roundish, smooth, leafy, and somewhat branched, especially at the top, in a paniculated manner, and bearing numerous crowded flowers in sub-corymbose clusters. *Leaves* opposite, on short foot-stalks, and more or less united at the base, ovate lanceolate, obtuse, or elliptic, lanceolate, acute, smooth, three ribbed, somewhat succulent, a bright green, paler on the under side, the margins entire. *Flowers* numerous, large, on short smooth or downy stalks, and each with a pair of linear lanceolate bracteas. *Calyx* smooth, cylindrical, about an inch long, obscurely ribbed, the teeth erect, lanceolate. *Petals* a pale pink, the limb large, spreading, obcordate, contracted at the base into a long slender four-angled channeled claw, crowned with a linear notched scale. *Stamens* with slender filaments, as long as the calyx, with oblong anthers, of two cells, yellow or purple. *Styles* with feathery stigmas, as long as the stamens. *Capsule* linear, ovate,

smooth, of one cell, and opening at the apex with four broadish lanceolate teeth. *Seeds* numerous, roundish, kidney-shaped.

Habitat.—Hedges, road sides, and banks of rivers; not uncommon. Perennial; flowering in August and September.

Soapwort is so called from the decoction of the plant producing, when agitated, a lather, as though it was a solution of soap; and it is declared by some persons to be possessed of the same qualities as soap, and that it was used by the mendicant Monks for washing their clothes. The whole plant is bitter, and was formerly supposed to possess considerable medicinal properties, and has been used for the cure of the itch, gout, rheumatism, and jaundice; but it is not now trusted to except by the vender of herbs, and the household doctress.

For a border flower Soapwort, though pretty and showy, is not very well fitted, as its underground stems widely extend, and become troublesome; but by cultivation the stamens are expanded into petals, and then it is considered a very handsome flower.

ORDER III.

TRIGYN'IA. 3 PISTILS.

GENUS XI. SILE'NE.—LINN. *Catchfly*.

Nat. Ord. CARYOPHYLL'LEÆ. JUSS.

GEN. CHAR. *Calyx* tubular often ventricose, five toothed, naked at the base. *Petals* five, clawed, mostly having scales at the mouth, and generally notched or bifid. *Stamens* ten. *Stigmas* three. *Capsules* three celled at the base, bursting at the apex with six teeth.—Name supposed to be derived from *σάλιον*, *saliva*; in allusion to the viscid moisture which is secreted on the stalks of many species, or it is a poetical name after the god Silenus, who is represented as being always drunk, and covered with saliva, as some of the species of this genus are with a viscid secretion.

Sect. 1. NANOSILENE. *Outh*. De Cand. Prod. p. 1, p. 367. *Tufted*. *Stem* very short. *Peduncles* single flowered. *Calyx* sub-inflated.

1. *S. acaulis*, Linn. (Fig. 707.) *Moss Campion*. Stem densely cæspitose; leaves linear, ciliated at the base; flowers terminal, solitary; peduncles and calyx smooth; calyx campanulate; petals obovate or obcordate, crowned, rose coloured.

English Botany, t. 1081.—English Flora, vol. ii. p. 299.—Hooker, British Flora, vol. i. p. 204.—Lindley, Synopsis, p. 46.

β. *alba*. Flowers white.



707

Silene acaulis.



708

Silene inflata.



709

Silene maritima.



710

Silene otites



711

Silene conica.



712

Silene anglica.

γ. hirsuta. Peduncles and calyx more or less hairy.

Root of long branched fibres. *Stem* short, much branched and tufted, forming very dense moss-looking patches from its very numerous crowded *leaves*, which are in pairs, and united at the base into a short tube, of a bright cheerful green, linear or linear lanceolate, and spreading, about half an inch long, single ribbed, the margins ciliated, with short pale hairs, mostly only at the base, but not unfrequently on the whole margin. *Peduncle* varying in length, from very short to an inch or more long, smooth or hairy. *Calyx* bell-shaped, smooth or hairy, the limb of five erect lanceolate teeth, in var. *γ.* obtuse, and the margin smooth or finely ciliated. *Petals* smooth, obovate or obcordate, the claw slender, having at the top a small cleft scale. *Stamens* with slender *filaments*, about as long as the calyx. *Style* with slender linear downy *stigmas*, longer than the stamens. *Capsule* linear, ovate, as long again as the calyx, three celled at the base, bursting at the apex with six obtuse teeth. *Seeds* kidney-shaped, finely rugose.

Habitat.—On the summit of lofty mountains; Snowdon, Ireland, and abundant on all the Scotch mountains.

Perennial; flowering in June and July.

The flowers vary from a beautiful rose colour to pure white, and are often diœcious, and the calyx is green or purple. Nothing can be more beautiful than the large dense lively green patches of this plant, covering the tops and sides of our lofty mountains, and especially when it is variegated with the gay colours of its handsome flowers, which are brighter and more lovely the more lofty the situation is in which they grow; and we have observed it very beautiful on artificial rock work, but neither is the brightness of its foliage nor the splendour of its flowers so great as when grown in its pure native air. It grows abundantly on the Alps of Switzerland, the Appennines of Italy; and my friend Mr. Parry has furnished me with beautiful specimens from the lofty mountains of the Pyrenees, some having the leaves quite smooth, and others ciliated with short hairs from the base to the apex.

Sect. 2. BEHENANTHA. *Oth.* De Cand. Prod. p. 1, p. 367. *Stems* elongated. *Flowers* solitary, or paniculated. *Calyx* inflated, bladdery.

2. *S. infla'ta*, Smith. (Fig. 708.) *Bladder Campion.* Flowers numerous, in a terminal branched panicle; calyx ovate, inflated, numerously ribbed and netted with veins, smooth; petals deeply cloven into two narrow segments; crown of very small scales, bifid; leaves ovate lanceolate.

English Flora, vol. ii. p. 292.—Hooker, British Flora, vol. i. p. 204.—Lindley, Synopsis, p. 45.—*Cucubalus Behen*, Linn.—English Botany, t. 164.

β. maritima, De Cand. Leaves ovate lanceolate, pubescent, or downy.

♂. De Cand. Prod. p. 1, p. 368.—β. Lindley, Synopsis, p. 45.—Hooker, British Flora, vol. i. p. 204.

γ. *angustifolia*, De Cand. Smooth leaves, linear lanceolate.—β. De Cand. Prod. p. 1, p. 368.

♂. *virida*. Stem downy; leaves ciliated, green, not glaucous.

Root of stout branched fibres. The whole plant is mostly smooth, and of a glaucous green, but in β. *maritima* it is more or less downy; and in ♂. *virida* it is downy, but of a pale green colour, and not glaucous. *Stems* mostly numerous, and procumbent at the base, becoming erect, and from two to three feet high, round, leafy, branched, and hollow, terminating in almost naked more or less branched panicles. *Leaves* sessile, opposite, the lower ones tapering into a footstalk, very variable in shape and size, ovate, ovate lanceolate, oblong, or as in γ. *angustifolia* linear lanceolate, from one to two inches long, and always single ribbed. *Inflorescence* terminal, panicles more or less branched and spreading, generally many flowered, at first drooping or pendulous, becoming erect, each flower on a slender peduncle, having at its base a pair of ovate thin membranous *bractea*. *Calyx* large, roundish, ovate, inflated, of a thin semi-membranous texture, green or purplish, mostly smooth, sometimes hairy, with numerous longitudinal slender ribs, and copious netted connecting veins. *Petals* pure white, the limb short, deeply divided into two narrow lobes, and mostly crowned at the base with bifid scales, claws dilated at the top, tapering. *Stamens* with slender *filaments*, of unequal lengths, about as long as the calyx. *Styles* with linear *stigmas*, much longer than the stamens. *Capsule* ovate, smooth, enveloped in the persistent calyx, more or less deeply, three celled at the base, with a central conical receptacle, bursting at the apex with six lanceolate recurved teeth. *Seeds* numerous, dark brown, kidney-shaped, elegantly marked with lines of elevated points.

Habitat.—Pastures, hedges, and road sides; common. β. near the sea, and on dry sandy ground about Worksop, Nottinghamshire, &c. γ. near Lincoln, and Clumber Park, Nottinghamshire. ♂. on cold clay land about Lincoln.

Perennial; flowering in August.

This is an extremely variable plant in size, in the shape of its leaves, and the number of its flowers, and its either smooth or hairy, green or glaucous, variations depending upon the soil and situation in which it is grown. The young shoots, when grown quick and blanched, form a very delicate and wholesome vegetable, having, it is said, the flavour of green peas or asparagus, for either of which it might be substituted; and we have no doubt, if attention was paid to its improvement, that its introduction as a new vegetable into the London markets would well repay the trouble of its cultivation.

3. *S. maritima*, With. (Fig. 709.) *Sea Campion*, or *Catchfly*. Flowers solitary, or a few in a terminal panicle; calyx large, ovate, numerous ribbed and reticulated with veins, smooth; petals scarcely

cloven with broad segments; crown of small acute bifid scales; stem branched and spreading; leaves ovate lanceolate, or spatulate.

English Botany, t. 957.—English Flora, vol. ii. p. 293.—Hooker, British Flora, vol. i. p. 205.—Lindley, Synopsis, p. 45.—*S. inflata*.— β . Hooker, Flora, Scot. vol. i. p. 135.

Root fibrous, with creeping branched underground stems. The whole plant smooth, and of a very glaucous green. *Stems* numerous, prostrate, and mostly much branched at the base, becoming erect, from three to six inches high, leafy, round, hollow. *Leaves* opposite, sessile, sometimes the lower ones tapered into a footstalk, lanceolate or ovate lanceolate, single ribbed, smooth, very glaucous, somewhat fleshy, the margins frequently finely and irregularly toothed, often with a few short hairs. *Flowers* solitary, terminal, or several in a branched panicle, the *peduncles* stout, erect, each with a pair of ovate lanceolate leafy or sub-membranous *bractea*. *Calyx* very large for the size of the plant, ovate, inflated, sub-membranous, pale green, or mostly purplish, with numerous ribs, and copiously netted with veins. *Petals* five, white, the limb inversely heart-shaped, wedge-shaped at the base, the claw dilated at the top, slender below, and crowned with a scale, cleft into short acute lobes. *Stamens* with slender *filaments*, as long as the calyx. *Styles* with slender *stigmas*, from three to five, longer than the stamens. *Capsule* globose, smooth, smaller than in the last species, enveloped in the persistent calyx. *Seeds* numerous, dark brown, kidney-shaped, elegantly marked with lines of elevated points.

Habitat.—Frequent on the sea shore; in sandy places and amongst stones, also on the sides of mountain rills.

Perennial; flowering from June to August.

Sect. 3. OTITES. *Oth.* De Cand. Prod. p. 1, p. 369. *Stems* elongated. *Flowers* in whorled racemes.

4. *S. Otites*, Smith. (Fig. 710.) *Spanish Catchfly*. Stem erect, nearly simple, scarcely pubescent, and with few leaves; flowers numerous, small, diœcious, in racemose whorls; petals entire, linear, naked; leaves spatulate, somewhat fleshy, the upper ones lanceolate.

English Botany, t. 85.—English Flora, vol. ii. p. 298.—Hooker, British Flora, vol. i. p. 205.—Lindley, Synopsis, p. 46.

Root cylindrical, long, branched, somewhat fleshy, yellow, bearing a tuft of leaves and a solitary stem, rarely branched, from one to two feet high, round, nearly smooth, and bearing a few pairs of opposite leaves, very viscid in the upper part. *Leaves* from the root numerous, spatulate, dark green, paler beneath, somewhat fleshy, more or less viscid, and roughish, from two to three inches long, the footstalk channeled. *Inflorescence* a terminal spike of numerous flowers, in racemose whorls, the branches opposite. *Flowers* small, yellowish green, on slender *peduncles*, from the axis of ovate short *bracteas*, diœcious, the male flowers with a sub-clavate calyx, the female flowers with a globose one, smooth, as is the whole inflorescence. *Petals* entire, small, linear,

without a scale at the base. *Stamens* on slender *filaments*, longer than the calyx. *Styles* with downy *stigmas*, varying in number from three to five. *Capsule* elliptical, longer than the calyx, and enveloped by it, opening at the apex with six lanceolate teeth.

Habitat.—Sandy fields; chiefly in Norfolk, Suffolk, and Cambridgeshire.

Perennial; flowering in July and August.

Sect. 4. CONOIMORPHA. *Outh.* De Cand. Prod. p. 1, p. 371.

Stem elongated. Calyx conical, umbilicated at the base, the limb with long teeth.

5 *S. conica*, Linn. (Fig. 711.) *Striated Corn Catchfly*. Downy, leaves linear, soft; panicle forked; calyx when in fruit conical, umbilicated at the base, ribbed, with thirty stria; the limb of five subulate teeth; petals obcordate, crowned; capsule oblong, ovate.

English Botany, t. 922.—English Flora, vol. ii. p. 294.—Hooker, British Flora, vol. i. p. 206.—Lindley, Synopsis, p. 45.

Root small, long, tapering. *Stem* erect, from a few inches to two feet high, round, clothed with pubescence, leafy, simple or branched. *Leaves* opposite, linear, sessile, and united at the base into a short sheath, very downy, with a stout mid-rib, and mostly one or two lateral ones. *Inflorescence* a forked panicle, with a solitary flower from the axis, sometimes the stem is terminated with a solitary flower. *Calyx* when in flower narrow, swelling when in fruit into a conical shape, and becoming depressed in an umbilicated manner, the limb in five erect acute awl-shaped long teeth, striated, with thirty nearly equal prominent downy ribs. *Petals* with a small inversely heart-shaped small limb, of a purple colour, the claw tapering, wedge-shaped, crowned with a small cleft scale. *Stamens* with slender *filaments*, shorter than the calyx. *Styles* with slender *stigmas*, about as long as the calyx. *Capsule* oblong, ovate, smooth, as long as the tube of the calyx, and enveloped in it. *Seeds* numerous, kidney-shaped, dotted with lines of elevated points.

Habitat.—Sandy fields; rare. Near Romney and Sandown Castle, Kent; near Bury.—*Mrs. M. A. Blake.*

Annual; flowering in July.

The flower is small, but in the evening very fragrant, and is of a purple colour. It is nearly allied to *S. conoidea*, Linn., which is distinguished by its linear lanceolate nearly smooth leaves, the petals being entire or crenated, and the capsule globoso-depressed. Lindley has given it as found in England, and upon the authority of Hudson and Sir J. Smith; but as there are some doubts as to its really being indigenous, we have not given it a place in the list of our Flora, though it may yet be found to have a just claim, not having been hitherto generally distinguished from *S. conica*.

Sect. 5. STACHYMORPHA. *Outh.* De Cand. Prod. p. 1, p. 371.

Stems elongated. Flowers axillary, spicate, alternate. Calyx with ten stria.

6. *S. Anglica*, Linn. (Fig. 712.) *English Catchfly*. Hairy and viscid; stem branched; leaves lanceolate, acute; calyx ovate, with ten stria, the teeth subulate; petals small, obcordate, with a bifid crown at the base.

English Botany, t. 1178.—English Flora, vol. ii. p. 291.—Hooker, British Flora, vol. i. p. 205.—Lindley, Synopsis, p. 45.

Root small, fibrous. *Stem* branched or simple, varying greatly in luxuriance, from a few inches to near two feet high, round, leafy, swollen at the joints, and clothed more or less thickly, like the rest of the plant, with viscid hairs. *Leaves* opposite, sessile, lanceolate, the lower ones sometimes approaching, spatulate, single ribbed, entire, somewhat succulent, and from one to two inches long. *Inflorescence* terminal, leafy, lax spikes, of numerous *flowers*, one, sometimes two, from the axis of the leaves, erect in flower, the lower ones often spreading, or reflexed when in fruit. *Calyx* at first narrow cylindrical, becoming when in fruit ovate, marked with ten green ribs, terminating in rather long awl-shaped teeth, pale, thin and membranous between, clothed with viscid pubescence, intermixed with stout hairs. *Petals* small, the limb inversely heart-shaped, white, sometimes marked with reddish spots about the middle, tapering into a claw, and crowned with a scale of two acute teeth. *Stamens* with unequal awl-shaped *filaments* and small *anthers*. *Styles* three, rather short, downy. *Capsule* ovate, smooth, longer than the tube of the calyx, and closely invested with it. *Seeds* numerous, small, dark brown, kidney-shaped, elegantly marked with smooth transverse lines.

Habitat.—Sandy and gravelly fields. In Surrey, Cambridgeshire, Hertfordshire, Norfolk, South Port, Lancashire, Nottinghamshire, Cornwall, and North Wales. Between Dundee and St. Andrew's, and near Perth, Scotland. Near Castletown, Bearhaven—*Mr. J. Drummond*; and Benone, County of Derry, Ireland—*Mr. D. Moore*.

Annual; flowering in June and July.

When the petals are marked with red spots, this species has much resemblance to the following *S. quinquevulnera*, with which it is united by Koch, who considers them both varieties of *S. Gallica*, Linn. a species frequent on the Continent.

7. *S. quinquevulnera*, Linn. (Fig. 713.) *Variegated Catchfly*. Hairy and viscid; stem branched; leaves lanceolate, the lower ones obtuse; calyx ovate, with ten stria, the teeth subulate; petals small, roundish, entire or crenated, with a bifid crown at the base.

English Botany, t. 86.—English Flora, vol. ii. p. 292.—Hooker, British Flora, vol. i. p. 205.—Lindley, Synopsis, p. 45.

Similar to *S. Anglica* in every respect, with the exception of the petals having a roundish entire or crenated margin, which is a character by no means constant in those of *S. Anglica*, for they are not

unfrequently found simply waved, and not notched; and the colour is also far from constant, for *S. Anglica* is often marked with red, and *S. quinquevulnera* is often by cultivation white. We have, however, given a figure of a specimen the most distinctly marked, and leave the determination as to how far it is a distinct species to further observation, though at present we are much disposed with Koch, in his *Flora Germanica et Helvetica*, to consider both this and *S. Anglica* varieties of *S. Gallica*.

Habitat.—Sandy corn fields, near Wrotham, Kent.—*Hudson*. Duppa's Hill, by Croydon.—*Mr. Borrer*.

Annual; flowering in June and July.

A common Annual of our gardens, flowering very freely, and though its flowers are very small, they are extremely pretty when deep coloured, and have a showy appearance.

Sect. 6. SIPHONOMORPHA. *Outh*. De Cand. Prod. p. 1, p. 377.

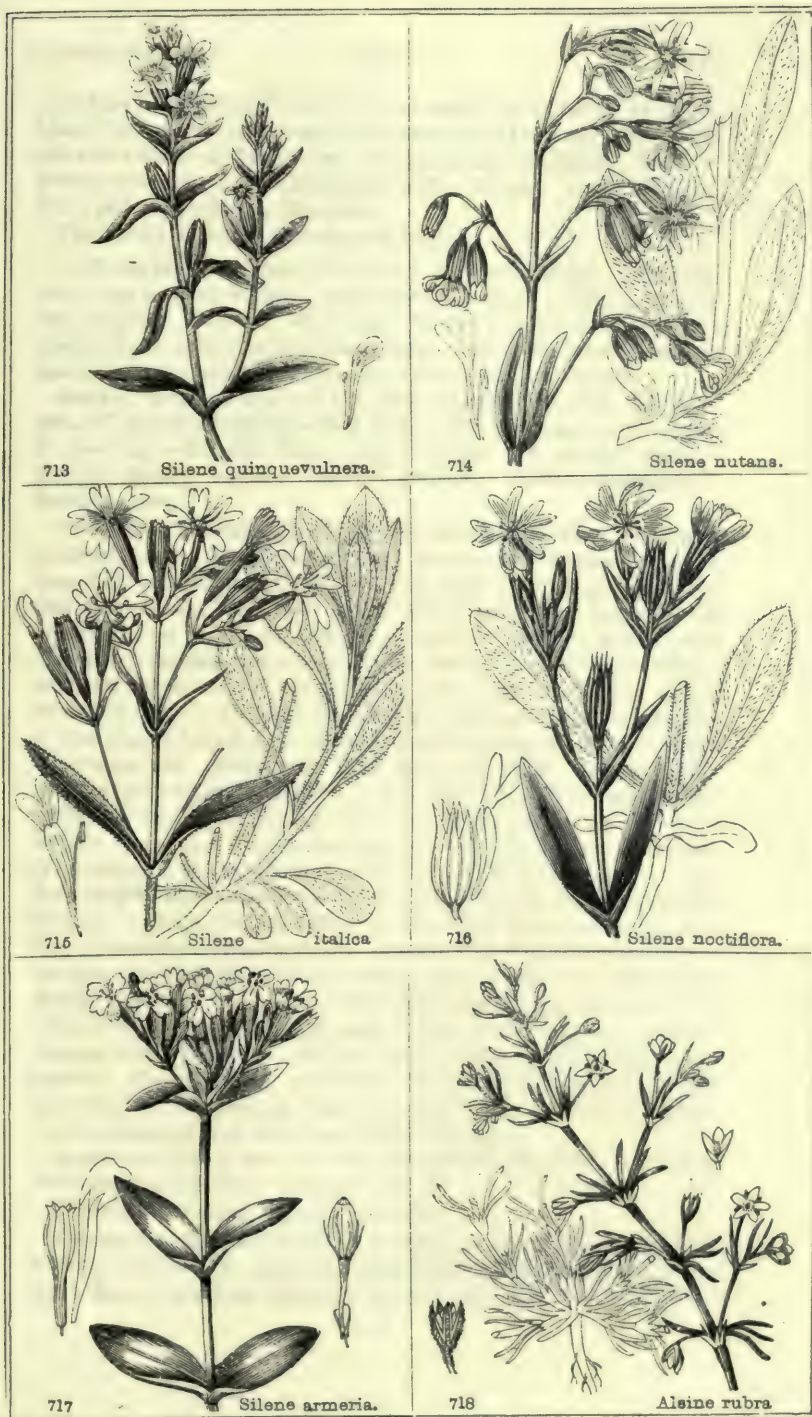
Stem elongated. Flowers paniculated, opposite, on short pedicles.

Calyx tubular.

8. *S. nutans*, Linn. (Fig. 714.) Nottingham Catchfly. Pubescent stem very leafy at the base, above viscid; panicle with opposite short branches, and unilateral flowers; calyx tubular, nearly cylindrical; petals deeply cleft into narrow segments, crowned; lower leaves on footstalks, spatulate, the upper lanceolate, sessile.

English Botany, t. 465.—English Flora, vol. ii. p. 297.—Hooker, British Flora, vol. i. p. 206.—Lindley, Synopsis, p. 46.

Root tapering, branched, somewhat fleshy. *Stem* procumbent and woody at the base, more or less branched, and very leafy, the flowering stem erect, from twelve to eighteen inches high, round, rough, with hairs, and bearing a few pairs of opposite leaves, rarely branched. *Leaves* of a cheerful green, rough on both sides, with pubescence, entire, single ribbed, the lower ones numerous, spatulate, often on long channeled footstalks, the point sometimes rounded, but generally acute, the upper leaves opposite, lanceolate, sessile. *Inflorescence* a terminal panicle of several pairs of short branches, forked, and bearing from three to six flowers, on short *peduncles*, all turned to one side, each with a *bractea* at the base, and the whole panicle clothed with hairs, more or less viscid. *Calyx* nearly cylindrical, the limb of five lanceolate teeth, striated, with ten green stout ribs, pale and sub-membranous between, and clothed with viscid hairs. *Petals* white, much longer than the calyx, the claw long, narrow, the limb deeply cleft into two linear lobes, and at its base is a scale cleft into two acute or tapering lobes. *Stamens* with long slender linear *filaments*, the *anthers* oblong, two celled, often purple. *Styles* slender, mostly as long as the stamens. *Stigmas* linear, obtuse, downy. *Capsule* ovate, rather longer than the persistent calyx. *Seeds* numerous, dark brown, kidney-shaped, marked with lines of elevated points.



Habitat.—Rocks and old walls, especially of limestone or chalk. About Nottingham, and several other parts of that county; Dove Dale, and about Matlock, Derbyshire; Knaresborough, Yorkshire; Cliffs at Dover; Ormeshead, Carnarvonshire.—*Mr. Wilson*. North Queensferry, and near Arbroath, Scotland.

Perennial; flowering in June and July.

9. *S. Italica*, *De Cand.* (Fig. 715.) *Italian Catchfly*. Pubescent stem, very leafy at the base, much branched, above viscid; panicle of long opposite branches, with erect flowers; calyx long, clavate; petals deeply cleft into broad segments, naked; the lower leaves on footstalks, ovate, spatulate, the upper linear lanceolate, sessile.

Hooker, *British Flora*, vol. i. p. 206.—Lindley, *Synopsis*, Suppl. p. 320.—*S. paradoxa*, Smith.—*Flora Brit.* p. 467. (not Linn.)—*S. nutans*. β . *paradoxa*.—*English Flora*, vol. ii. p. 297.—*S. patens*, *Peete*.—*English Botany Suppl.* t. 2748.—*Cucubulus viscosus*, Hudson.—*C. Italicus*, Linn.

Root long, tapering, branched, and somewhat fleshy. *Stem* procumbent at the base, crowded with leaves, and numerous barren spreading leafy branches, the flowering stem erect, from one to two feet high, round, hairy, and mostly much branched. *Leaves* at the base and lower part of the stem, ovate, spatulate, acutely pointed, and tapering at the base into a long slender channeled more or less winged footstalk, single ribbed, those on the stem linear lanceolate, sessile, entire, or slightly waved on the margin with a stout mid-rib, and two or four slender lateral ones, all of a cheerful green, rather paler on the under side, and clothed with thick short soft hairs. *Inflorescence* a terminal panicle, of from three to four opposite pairs of long slender spreading viscid and downy branches, mostly twice forked with a solitary flower on a longish peduncle from the axis. *Bractees* linear, or awl-shaped, the calyx long, nearly cylindrical in the bud, becoming club-shaped, striated with ten slender ribs, pale, thin and membranous between, and more or less thickly clothed with short pubescence, the limb of five short spreading teeth. *Petals* much longer than the calyx, the claw long, slender, the limb white, often purplish on the outside, deeply cleft into two rather broad segments, and at its base is an obsolete scale. *Stamens* with long slender linear segments. *Anthers* oblong, often purplish. *Styles* long, slender, with linear downy stigmas. *Capsule* ovate, somewhat conical, elevated on a long stout peduncle, but enclosed in the persistent calyx. *Seeds* numerous, brown, kidney-shaped, with lines of elevated points.

Habitat.—Cliffs of Dover.—*Mr. Forster* and *Mr. Peete*. Worksoep Park, Nottinghamshire; very rare.—*R. D.*

Perennial; flowering in June and July.

This species, though allied to *S. nutans*, is readily distinguished by its long club-shaped calyx, its broad lobed petals without scales, its much larger spreading branched panicle with erect flowers, and the

branched flowering stems, which are much longer than *S. nutans*, and the branches are alternate, rarely opposite. It is frequent in Italy, growing mostly in stony places on hill sides.

10. *S. noctiflora*, Linn. (Fig. 716.) *Night-flowering Catchfly*. Viscoso-pubescent; stem erect, branched, above forked; calyx cylindrical, oblong, ovate in fruit, ten ribbed, with awl-shaped teeth; petals deeply bifid, crowned; leaves large, the lower ones obovate, petiolated, the upper lanceolate, attenuated, sessile.

English Botany, t. 291.—English Flora, vol. ii. p. 295.—Hooker, British Flora, vol. i. p. 206.—Lindley, Synopsis, p. 46.

Root small, tapering, and branched. The whole plant clothed with soft pubescence, somewhat viscid, and of a dark green colour. *Stem* erect, round, from one to two feet high, branched above in a forked manner, and from the axis of each division is a solitary flower, on rather a long *peduncle*. *Flowers* not very numerous, rather large, sweet scented, and only expanding after sun-set, of a pale pink, almost white, the peduncles viscid. *Calyx* large, cylindrical when in flower, becoming ovate or oblong ovate when in fruit, striated, with ten stout green ribs, pale and membranous between, the limb of five narrow more or less awl-shaped teeth. *Petals* with a tapering claw, the limb of two broad lobes, somewhat heart-shaped, with an obtuse cloven scale at the base. *Stamens* with slender *filaments* and small ovate *anthers*, purplish. *Styles* as long as the stamens, with linear downy *stigmas*. *Capsule* ovate, elevated on a short thick pedicle, enveloped in the persistent calyx.

Habitat.—Sandy or gravelly fields; not common, though found in many parts of England. On the coast of Angus-shire, Scotland.—*Mr. G. Don*. Near Inveresk.—*Mr. Coldstream*.

Annual; flowering in July.

Sect. 7. *ATOCION*. *Oth.* De Cand. Prod. p. 1. p. 383. *Stem* elongated. *Flowers* corymbose. *Calyx* club-shaped, with ten stria.

11. *S. Arne'ria*, Linn. (Fig. 717.) *Common or Lobel's Catchfly*. Smooth, glaucous, upper joints of the stem viscid, branched; panicle branched; flowers corymbose, densely crowded; calyx long, club-shaped, the limb of five ovate acute teeth; petals notched, crowned with awl-shaped scales; leaves ovate lanceolate, sessile.

English Botany, t. 1398.—English Flora, vol. ii. p. 296.—Hooker, British Flora, vol. i. p. 207.—Lindley, Synopsis, p. 46.

Root small, tapering. The whole plant smooth, and of a deep glaucous green. *Stem* erect, solitary, simple, or more frequently alternately branched, round, leafy, swollen at the joints, the upper ones with a viscid and often downy ring under them. *Leaves* ovate lanceolate, sessile, opposite, with a stout mid-rib and slender lateral veins. *Inflorescence* dense terminal corymbose panicles, of numerous *flowers*, each elevated on a short *peduncle*, with a membranous lanceolate *bractea*. *Calyx* long, smooth, striated, with ten slender ribs, the

limb of five slender ovate acute teeth, pinkish, cylindrical when in flower, club-shaped in fruit. *Petals* small, with a long tapering claw, the limb small, inversely heart-shaped, of a more or less deep purple colour, sometimes white, having a crown at the base of two narrow lanceolate scales. *Stamens* with slender *filaments*, of unequal lengths. *Anthers* purple, oblong. *Styles* with slender downy *stigmas*. *Capsule* ovate, on a long pedicle. *Seeds* numerous, small, brown, kidney-shaped.

Habitat.—Banks of the Dee, half a mile from Chester; but a doubtful native.

Annual; flowering in July and August.

It appears probable that this species has escaped from the garden, nor does it seem to have been found anywhere but in the above station, though it is not unfrequent on the Continent as an annual border flower. It has long been cultivated, and is a pretty showy plant.

GENUS XII. ALSINE.—WAHLENBERG. *Alsine*.

Nat. Ord.* CARYOPHYLLÆÆ. JUSS.

GEN. CHAR. *Calyx* of five, rarely of four pieces. *Petals* five, rarely four, entire, or slightly notched. *Stamens* ten, some of which are occasionally abortive. *Filaments* subulate. *Styles* three. *Capsules* three valved, of one cell, many seeded. Name from *αλος*, a *shady place*; where the *Alsine* usually grows.

* This, and several of the following genera, are formed by some authors into a separate order, the *ALSINÆÆ*, *De Cand.*, and are divided in the following manner by Dr. Koch.

1. *Valves of the capsules the same number as the styles.*

1. *BUFFONIA*. Capsule with two valves.
2. *ALSINE*. Capsule with three valves, filaments all subulate, the outer ones with a short gland at the base.
3. *CHELERIA*. Capsule with three valves, the outer filaments with an oblong emarginate gland at the base.
4. *SAGINA*. Capsule with four valves.
5. *SPERGULA*. Capsule with five valves.

2. *Valves of the capsules twice the number of the styles.*

6. *ARENARIA*. Capsule with six valves, petals entire, seeds without an arillus.
7. *MOEHRINGIA*. Capsule with from four to six valves, petals entire, seeds with an arillus.
8. *HOLOSTEUM*. Capsule with six valves, petals toothed.
9. *STELLARIA*. Capsule with six valves, petals bifid or bipartite.
10. *MCNCHIA*. Capsule with eight valves, petals entire.
11. *MALACHIUM*. Capsule with ten valves, (or rather of five bifid valves), petals bifid or emarginate.
12. *CERASTIUM*. Capsule with ten valves, petals bifid or emarginate, (in *C. tetrandrum* capsule eight valved).

Sect. 1. SPERGULARIA. *Pers.* De Cand. Prod. p. 1. p. 400.—
Koch. Flora Germ. et Helvet. p. 111. *Leaves linear, with a pair*
of membranous stipules at the base.

1. *A. ru'bra.* *Wahl.* (Fig. 718.) *Purple Alsine.* Stems prostrate; leaves narrow, linear, acute, plane, somewhat fleshy, bristle pointed; stipules lanceolate ovate, cloven; peduncles after flowering reflexed; segments of the calyx lanceolate, with membranous margins; capsule as long as the calyx; seeds compressed, angular, and rugulose.

Arenaria rubra, Linn.—English Botany, t. 852.—English Flora, vol. ii. p. 311.—Hooker, British Flora, vol. i. p. 210.—Lindley, Synopsis, p. 50.

Root long, tapering, fleshy. *Stems* numerous, weak, and slender, prostrate, and spreading in a circular manner around the root, branched, leafy around, smooth in the lower part, often above clothed with soft glandular hairs, as are also the peduncles and calyx. *Leaves* opposite, half an inch long, very narrow, linear, flat on both sides, acute, with the point terminating in a short bristle, somewhat fleshy, quite smooth, and mostly of a glaucous green, each with a pair of ovate acute cloven pale thin shining membranous *stipules*, and often in the axis of the leaves are a tuft of others, which are abortive branches, or in a young state. *Flowers* mostly numerous towards the end of the branches, solitary from the axis of the leaves, on slender *peduncles*, longer than the leaves, smooth or downy, especially towards the top, erect, or spreading when in flower, bent downwards in fruit. *Calyx* of five lanceolate segments, with narrow pale membranous margins, having an obscure mid-rib, and clothed with glandular pubescence. *Corolla* of five ovate reddish *petals*, about as long as the calyx. *Stamens* with awl-shaped *filaments*, nearly as long as the petals. *Anthers* small, ovate. *Capsule* ovate, about the length of the persistent calyx, smooth, opening with three valves. *Seeds* numerous, triangular, compressed into a wedge-shape, brown, small, and rugose.

Habitat.—Sandy fields, road sides, &c.; frequent.

Annual; flowering in June and July.

The bright coloured flowers of this species only expand in fine weather, and when the sun shines. It is a pretty spreading plant, very common on the road sides in many sandy districts, and varies considerably in its luxuriance, and in the leaves being a bright or more or less glaucous green.

2. *A. mari'na, Mertens and Koch.* (Fig. 719.) *Sea-side Alsine.* Stems prostrate; leaves linear, flat on the upper side, convex at the back, fleshy, with an acute point; stipules ovate, acute, cloven; peduncles after flowering reflexed; segments of the calyx ovate lanceolate, with membranous margins; capsules longer than the calyx; seeds obovate, compressed, with a membranous border.

Arenaria marina, Oed.—English Botany, t. 958.—English Flora, vol. ii. p. 312.—Hooker, British Flora, vol. i. p. 211.—*A. media,*



719

Alsine marina.



720

Alsine peplodes.



721

Alsine verna.



722

Alsine rubella.



723

Alsine tenuifolia.



724

Alsine fastigiata.

Linn.—Lindley, Synopsis, p. 50.—*A. rubra*.— β . *marina*, *Linn.*—De Cand. Prod. p. i. p. 401.—*Alsine Spergula facie medii Raii* Syn. 351.

Root tapering, long, fleshy. *Stems* numerous, branched, prostrate, and spreading, round, smooth, leafy. *Leaves* opposite in pairs, about an inch long, linear, acute, fleshy, not bristle pointed, flat on the upper side, rounded on the under, quite smooth, and having at the base a pair of broad ovate acute entire or cleft pale thin membranous *stipules*. *Flowers* mostly in a terminal sub-corymbose raceme, and not so much scattered along the stems and branches, and in *A. rubra* on rather stout smooth or slightly hairy shortish *peduncles*, erect when in flower, reflexed in fruit. *Calyx* rather large, in five ovate lanceolate segments, with pale membranous margins, obscurely three ribbed, slightly united at the base, smooth, rarely scattered over with pubescence. *Petals* ovate, rather longer than the calyx, purplish, rose colour. *Stamens* with awl-shaped *filaments*, shorter than the petals. *Anthers* ovate, yellow. *Capsule* ovate, smooth, and shining, longer than the calyx. *Seeds* obovate, compressed, brown, smooth, or slightly rugose, and with a more or less evident pale thin plaited and crenated margin.

Habitat.—On the sea coast; frequent.

Annual or Biennial; flowering in June or July.

This, in some of its varieties grown in dry places, partakes of some of the characters of *A. rubra*; but the shape, length, and substance of the leaves, the more terminal inflorescence, shorter peduncles, larger calyx, and different shape of its segments, together with the relative size of the capsules, independent of the difference in the shape of the seeds, are characters sufficiently constant to distinguish it as a separate species from *A. rubra*.

Sect. 2. *ARENARIUM. Ser.* De Cand. Prod. p. 1. p. 401. Koch. Flora Germ. et Helv. p. 111. *Leaves without stipules. Flowers white.*

* *Leaves ovate.*

3. *A. peploi'des*, *Wahl.* (Fig. 720.) *Sea-side Alsine.* Leaves ovate, acute, sessile, smooth, fleshy; flowers lateral, solitary, axillary; calyx with ovate obtuse single ribbed segments; petals ovate, about as long as the calyx; filaments alternating with glands.

Arenaria peploides, *Linn.*—English Botany, t. 189.—English Flora, vol. ii. p. 366.—Lindley, Synopsis, p. 49.—De Cand. Prod. p. 1. p. 413.—*Adenarium peploides*, *Rafin.*—De Cand. Prod. p. 3. p. 366. (in Note).—*Honkenya peploides*, *Ehrh.*—*Halianthus peploides*, *Fries.*

Roots fibrous, with long creeping underground stems, and putting out fibres from the joints. *Stems* procumbent, branched, alternately, and spreading round, thick, smooth, and fleshy, the branches somewhat angular. *Leaves* numerous, crowded opposite, slightly united at the base, fleshy, smooth, and shining, ovate, acute, single ribbed, some-

what recurved. *Flowers* from the axils of the upper leaves, mostly solitary, rarely two or three together, nearly sessile, small, and inconspicuous. *Calyx* of ovate obtuse or somewhat pointed segments, with an obscure rib. *Petals* about as long as the calyx, white, obovate, with a short claw. *Stamens* with *filaments*, alternating with oblong glands, shorter than the petals. *Styles* very short. *Stigmas* spreading. *Capsule* large, roundish ovate, quite smooth, opening with three valves, sometimes there are four, or even five. *Seeds* few, large, obovate, dark brown, finely dotted, and sometimes the flowers are diœcious and abortive.

Habitat.—Sandy sea coasts; frequent.

Perennial; flowering in June and July.

The habit of this species is certainly very different from any other of the genus. There is not, however, in its structure any difference upon which to found a generic distinction; it is true the glands between the stamens are larger than in any of the other species, but these vary in size, and the whole plant is of a succulent texture, like most others growing on the sea coasts, and have all the glandular parts more largely developed. The petals we have frequently seen very narrow, and nearly half as long as the calyx, and the styles vary in number from three to five, as well as the valves of the capsules.

** *Leaves* narrow, linear, or awl-shaped, three ribbed when dry.

4. *A. ver'na*, Bartling. (Fig. 721.) *Vernal Alsine*. Stems procumbent at the base, much branched, and very leafy; flowering stems erect, one to many flowered; leaves linear, subulate, three ribbed; segments of the calyx ovate lanceolate, three ribbed, with a membranous margin; petals obovate, with a short claw, and as well as the capsule as long as the calyx.

Arenaria verna, Linn.—English Botany, t. 512.—English Flora, vol. ii. p. 309.—Hooker, British Flora, vol. i. p. 209.—Lindley, Synopsis, p. 50.

Root long, cylindrical, branched. *Stem* very much branched, procumbent, and very leafy, forming dense tufts, flowering stems numerous, erect, paniculated, above round, slender, more or less downy and glandular, leafy, from two to four inches high. *Leaves* opposite, linear, awl-shaped, of a dull somewhat glaucous green, obtusely pointed, often curved, the margin somewhat membranous, pale, obtusely three ribbed, at least when dry, smooth, or scattered over with soft hairs, crowded in the lower part, shorter, broader, and rather distant on the flowering stems. *Flowers* various in number, sometimes solitary, but mostly forming a panicle, and each on a slender *peduncle*, from the axis of an ovate acute *bractea*. *Calyx* of five ovate lanceolate segments, with a narrow membranous margin, three ribbed, and like the peduncle smooth or hairy. *Petals* pure white, obovate, with a short claw, entire. *Stamens* with awl-shaped *filaments*, shorter than the petals, inserted into a glandular base, which sometimes protrudes

between them. *Styles* very short, stigmas spreading. *Capsule* cylindrical, as long, or rather longer than the persistent calyx, opening with three valves. *Seeds* small, brown, compressed, kidney-shaped, and rough, with elevated points.

Habitat.—Rocks and dry mountainous pastures. In the North of England and Wales; abundant on Arthur's Seat, and other places about Edinburgh, Mael Dun Crosk, Breadalbane, but not found in the West of Scotland. Trap rocks on Magilligan, County of Derry, between Luneagh Castle, and Kilferna, County of Clare.—*Dr. Osborne*. Isle of Arran.—*Mr. R. Ball*.

Perennial; flowering in May and June.

5. *A. rubella*, Wahl. (Fig. 722.) *Alpine Alsine*. Stems numerous, erect, very leafy below, single flowered; leaves linear, obtuse, three ribbed; segments of the calyx lanceolate, acute, three ribbed; petals obovate, with a short claw, shorter than the calyx; capsule cylindrical, as long as the calyx.

Arenaria rubella.—Hook. in Parry's 2d Voy. App.—English Flora, vol. ii. p. 309.—Don in English Botany Suppl. t. 2638.—Hooker, British Flora, vol. i. p. 210.—*A. hirta*, Wormskjold —De Cand. Prod. p. 1. p. 405.—Lindley, Synopsis, p. 49.

Root long, fibrous, branched. *Stems* numerous, erect, simple, or branched, very leafy below, and forming dense patches, short, round, smooth or hairy, flowering stems erect, round, mostly simple, slender, and more or less clothed with glandular pubescence. *Leaves* below very numerous, crowded, linear, obtusely pointed, united at the base, those of the flowering stems distant, ovate, acute, united at the base into a short tube, all three ribbed at the back, and more or less fringed or scattered over with simple or glandular hairs. *Flowers* terminal, solitary, very rarely there is also a lateral one. *Calyx* of five lanceolate acutely pointed segments, with a pale thin membranous margin, three ribbed, smooth or downy. *Petals* white, obovate, with a short claw a little shorter than the calyx. *Stamens* with awl-shaped filaments, inserted into a glandular disk, as long as the petals. *Anthers* ovate, two celled, reddish. *Styles* very short, three, four, or five. *Capsule* cylindrical, rather longer than the calyx, opening with three, four, or sometimes with five valves. *Seeds* small, brown, compressed, kidney-shaped, roughish, with elevated points, numerous.

Habitat.—Rocks and stones on alpine mountains. Near the summit of the Breadalbane mountains, in Scotland; very rare. Ben Lawers, and Craigalleach.—*Dr. Earl*. Ben Hope, Sutherland.—*Dr. Graham*.

Perennial; flowering in July.

6. *A. tenuifolia*, Wahl. (Fig. 723.) *Fine-leaved Alsine*. Stem much branched, dichotomous above; leaves narrow, subulate, three ribbed; pedicles long, slender; calyx segments narrow, subulate, three ribbed; petals ovate lanceolate, much shorter than the calyx; capsule three valved, as long as the calyx.

Arenaria tenuifolia, Linn.—English Botany, t. 219.—English Flora, vol. ii. p. 308.—Hooker, British Flora, vol. i. p. 210.—Lindley, Synopsis, p. 49.

Root tapering, small, branched. *Stem* mostly much branched from the base, spreading, slender, round, smooth, or sometimes hairy, from four to six inches high, leafy. *Leaves* narrow, linear, awl-shaped, three ribbed, in pairs, united at the base, spreading. *Panicle* forked, repeatedly with a solitary flower in the axis of divarication. *Flowers* mostly numerous, on long slender pedicles, erect. *Calyx* of five narrow awl-shaped lanceolate three ribbed segments, with a pale membranous margin. *Petals* white, ovate lanceolate, often not more than half as long as the calyx. *Stamens* short, with red *anthers*, frequently some of them abortive. *Styles* with spreading stigmas. *Capsule* cylindrical, as long as the calyx, opening with three valves.

Habitat.—Dry sandy fields, waste places, and old walls; not very frequent. Norfolk, Cambridgeshire, Oxfordshire, Worcestershire, &c. Cramond Island, Frith of Forth, and near Pettycur Harbour, Scotland.—*Mr. Yalden* and *Mr. G. Don*.

Annual; flowering in June.

7. *A. fastigiata*. (Fig. 724.) *Level topped Alsine*. *Stem* erect, straight; leaves subulato-setaceous, erect; flowers fasciculated; calyx with lanceolate very acute pale two ribbed segments, as long as the short pedicles; petals oblong, shorter than the calyx.

A. rostrata, Koch.—Flora Germ. et Helv.—*A. mucronata*, Gouan, (according to Hooker).—*Arenaria fastigiata*, Smith.—English Botany, t. 1744.—English Flora, vol. ii. p. 310.—Hooker, British Flora, vol. i. p. 210.—*A. fasciculata*, Jacq.—Lindley, Synopsis, p. 50.

"*Root* small, tapering, and zigzag. *Stems* either solitary or numerous, four or five inches high, alternately branched, leafy, round, nearly smooth, often purplish. *Leaves* very slender, smooth, erect, permanent, dilated, combined, and three ribbed at the base. *Flowers* in forked level topped crowded panicles. *Calyx* leaves all nearly equal smooth, taper pointed, remarkable for the great breadth of their ivory-like lateral ribs. *Petals* much shorter than the calyx, white, obtuse. *Stamens* ten, rather longer than the petals. *Capsule* oblong, of three valves. *Seeds* compressed, beautifully toothed like a wheel, each on a long slender stalk."

Habitat.—On the highland mountains of Scotland. On rocks on the mountains of Angus-shire and Fifeshire.—*Mr. G. Don*.

Annual; flowering in June.

Native specimens of this very rare plant we have not had the good fortune to meet with. The above description is from Smith's English Flora, which applies without any material difference to the plants found upon the Continent.



725

Cherleria sedioides.



726

Arenaria serpyllifolia



727

Arenaria ciliata.



728

Moehringia trinervia



729

Stellaria nemorum.



730

Stellaria cerastoides.

GENUS XIII. CHERLERIA.—LINN. *Cyphel*.

Nat. Ord. CARYOPHYLLÆÆ. JUSS.

GEN. CHAR. *Calyx* of five pieces. *Petals* five, minute, notched, sometimes wanting. *Stamens* ten, the outer ones opposite, the calyx segments with an emarginate gland at the base. *Styles* three. *Capsule* three valved, of one cell, many seeded.—Named in honour of John Henry Cherler, a friend and coadjutor of John Bauhin, in the Prodrômus of his History General Pl. in 1619.

1. *C. sedoides*, Linn. (Fig. 725.) *Mossy Cyphel*, or *Dwarf Cherleria*. Stem much branched, erect, crowded with linear obtuse opposite single ribbed leaves; calyx segments ovate oblong, three ribbed; capsule as long again as the calyx.

English Botany, t. 1212.—English Flora, vol. ii. p. 313.—Hooker, British Flora, vol. i. p. 211.—Lindley, Synopsis, p. 48.

Root fibrous, often very long, running into the crevices of the rocks. *Stem* from one to two inches long, much branched, with short much crowded branches, forming dense moss-like tufts, greatly crowded with leaves, which are opposite, united at the base into a short tube, narrow, linear, obtuse, short, channeled above, rounded at the back with a stoutish mid-rib, and rarely when dry with two lateral slender veins, smooth, and somewhat fleshy, the margins more or less ciliated with short glandular hairs. *Flowers* small, inconspicuous, terminal, and from the axis of the upper leaves few, of a greenish colour, on short pedicles, bearing about the middle a pair of small bracteas. *Calyx* of five ovate oblong segments, three ribbed, with a narrow membranous margin, and often ciliated with short glandular hairs. *Stamens* ten, with short filaments, the outer ones opposite, the calyx segments having before them a notched gland. *Petals* very small, notched, mostly absent. *Styles* short. *Stigmas* spreading. *Capsule* cylindrical, as long again as the calyx, opening with three obtuse valves. *Seeds* numerous, small, smooth, brown, compressed, kidney-shaped.

Habitat.—Summit of the Highland mountains, especially those of the Breadalbane range.

Perennial; flowering from June to August.

A remarkably close tufted plant, forming dense patches, of a cheerful green. It is nearly allied to *Alsine*, from which it is distinguished by the position of its notched glands, and the notched, small, or absent petals. Its habit is that of *A. verna* and *rubella*.

GENUS XIV. ARENARIA.—LINN. *Sandwort.*

Nat. Ord. CARYOPHYLLÆ. JUSS.

GEN. CHAR. *Calyx* of five pieces. *Petals* five, entire, or slightly notched. *Stamens* ten, some of which are occasionally abortive. *Styles* three. *Capsule* of one cell, six valved. *Seeds* numerous.—Named from *Arena*, sand, from the greater number of the species growing in sandy situations.

1. *A. serpyllifolia*, Linn. (Fig. 726.) *Thyme-leaved Sandwort.* Stems numerous, ascending; panicle forked; leaves ovate, acute, sessile, opposite; calyx segments lanceolate, acuminate, hairy, the outer ones three ribbed; petals ovate, wedge-shaped, about as long as the calyx.

English Botany, t. 923.—English Flora, vol. ii. p. 307.—Hooker, British Flora, vol. i. p. 209.—Lindley, Synopsis, p. 49.

Root of long branched fibres. *Stems* mostly numerous, curved at the base, becoming erect, from two to six inches high, round, leafy, mostly rough, with short hairs, simple, rarely branched above, divided into forked panicles, mostly of numerous flowers, with a solitary one from the axis of the branches. *Leaves* opposite, short, ovate, acute, sessile, and united at the base, the lower ones on footstalks, with a mid-rib and several lateral veins, more or less rough, with short hairs. *Flowers* on erect slender *pedicles*, downy, or viscid. *Calyx* of five narrow lanceolate acuminate segments, with a narrow pale membranous margin, hairy, the inner ones with a mid-rib, and two indistinct lateral ones, the outer with a mid-rib, and two, sometimes four lateral ones. *Stamens* on slender *filaments*, with ovate *anthers*, often of a purplish colour. *Petals* ovate, wedge-shaped, white, as long as the calyx, sometimes shorter. *Styles* with downy *stigmas*. *Capsule* ovate, as long as the calyx, opening with six valves. *Seeds* numerous, small, brown, kidney-shaped, wrinkled.

Habitat.—Old walls and dry places; frequent.

Annual; flowering in June and July.

This is a very variable plant with regard to its size and pubescence. It is, however, constant in its character, and readily distinguished from all others; the seeds are numerous, and a favourite food of small birds.

2. *A. ciliata*, Linn. (Fig. 727.) *Fringed Sandwort.* Stems much branched, procumbent at the base; leaves ovate lanceolate, or acute, shortly petiolated, roughish, and ciliated at the base; flowers few, sub-paniculated, or solitary; calyx segments lanceolate, acute, many ribbed, shorter than the ovate short clawed petals.

English Botany, t. 1745.—English Flora, vol. ii. p. 310.—Hooker, British Flora, vol. i. p. 209.—Lindley, Synopsis, p. 50.

Root small, branched. *Stems* numerous, procumbent at the base, and much branched, round, hairy, leafy, three or four inches high, slender, forming dense green tufts. *Leaves* opposite, ovate lanceolate, or acute, tapering at the base into a short footstalk, single ribbed, somewhat fleshy, roughish, and ciliated on the margin, especially towards the base, pale green. *Flowers* either solitary and terminal, or a few forming a panicle, rather large, the *calyx* segments lanceolate, acute, with a pale narrow membranous margin, the mid-rib stout, with several slender lateral veins. *Petals* pure white, ovate, tapering into a short claw, half as long again as the calyx. *Stamens* with slender filaments, and yellow ovate anthers, of two cells. *Capsule* ovate, shorter than the calyx.

Habitat.—Very rare in Ireland; on Limestone Cliffs at Sea Fin, and Ben Bulbin, County of Sligo.

Perennial; flowering in June and July.

This plant is found plentifully on the mountains of France, Switzerland, and Italy, where it varies in size, and the panicle in the number of its flowers, but does not exceed seven or eight, mostly from one to two.

3. "*A. Norvegica*, Gunn, *Norwegian Sandwort*. Leaves spathulate, fleshy, glabrous, as well as the much branched procumbent stems; branchlets one to three flowered; calyx leaves half as long as the corolla, ovate, acute, with three to five obscure ribs."

"Fl. Dau. t. 1269.—Hooker, *British Flora*, vol. i. p. 182, ed. 4.—*A. ciliata*, var. β . Willd."

"A plant with altogether the mode of growth and general aspect of *A. ciliata*, but the leaves are succulent, and everywhere glabrous, and the calyx leaves are broader, and obscurely ribbed."

Habitat.—"Unst, in the Shetland Islands, first discovered by Mr. Thomas Edmonstone, jun., an enthusiastic naturalist, only eleven years of age, and ascertained to be new to Britain, by Dr. M'Nab, on his visit to those islands, in 1837."

Perennial; flowering in July.

Native specimens of this species we have not seen. The description is from the fourth edition of Hooker's *British Flora*, but we fear the plant is too nearly allied to *A. ciliata* to constitute a good species.

GENUS XV. MOEHRINGIA.—LINN. *Moehringia*.

Nat. Ord. CARYOPHYLLÆ. JUSS.

GEN. CHAR. *Calyx* of four or five pieces. *Petals* four or five entire, or slightly notched. *Stamens* eight or ten. *Styles* two or three. *Capsule* four or six valved. *Seeds* numerous, with an arilliform

appendage.—Named by Linnæus in honour of *Paul Henry Gerard Moehring*, a physician, and author of *Hortus Proprius*, 1736.

1. 1. *M. trinervia*, *Clairville*. (Fig. 728.) *Three-nerved Chickweed*, or *Moehringia*. Stem erect, branched; leaves opposite, ovate, acute, three to five ribbed, petiolated; flowers solitary, axillary; calyx segments acute, three ribbed, roughish; petals obovate, oblong, as long as the calyx.

Arenaria trinervis, *Linn.*—English Botany, t. 1483.—English Flora, vol. ii. p. 307.—Hooker, British Flora, vol. i. p. 209.—Lindley, Synopsis, p. 49.

Root small, tapering. *Stem* weak, erect, often procumbent at the base, from six to twelve inches high, simple, or mostly much branched, round, clothed with pubescence. *Leaves* opposite, ovate, acute, entire, three, sometimes five ribbed, the upper ones nearly sessile, the lower on footstalks, nearly as long as itself, pale green, smooth or downy, and the margins ciliated with hairs. *Flowers* solitary from the axis of the upper leaves, small, white, on long slender erect *pedicles*, drooping after flowering. *Calyx* of five lanceolate acute segments, with broadish pale membranous margins, the mid-rib stout and rough, the lateral veins small, inconspicuous. *Petals* narrow, oblong, obovate, about as long as the calyx, sometimes shorter. *Stamens* with slender *filaments*, and yellow *anthers*, of two cells. *Capsule* ovate, shorter than the calyx, opening with six valves. *Seeds* numerous, brown, smooth, kidney-shaped, with an arilliform appendage at its base.

Habitat.—Shady woods and moist places; frequent.

Annual; flowering in May and June.

GENUS XVI. STELLA'RIA.—LINN. *Stitchwort*.

Nat. Ord. CARYOPHYLLÆ. JUSS.

GEN. CHAR. *Calyx* of five pieces. *Petals* five, deeply cloven. *Stamens* ten, some of which are occasionally abortive. *Styles* three. *Capsule* opening with six teeth at the apex. *Seeds* numerous.—Name from *Stella*, a *star*; from the star-like appearance of the expanded flowers.

Sect. 1. *HYLEBIA*, *Koch*. Flora Germ. et Helv. *Capsule* separating to the middle or below into six valves; *columella* linear, elongated; *stem* round.

1. *S. nemorum*, *Linn.* (Fig. 729.) *Wood Stitchwort*. Stem round, procumbent at the base, downy; panicle forked; leaves ovate, heart-shaped, petiolated, the upper ones ovate, acute, sessile; calyx with lanceolate segments, about half as long as the deeply bifid petals.

English Botany, t. 92.—English Flora, vol. ii. p. 300.—Hooker, British Flora, vol. i. p. 207.—Lindley, Synopsis, p. 52.

Root fibrous. *Stem* from twelve to eighteen inches high, slender, and procumbent at the base, round, hollow, and more or less thickly clothed with soft somewhat glutinous pubescence, especially above, simple, rarely branched below, but above divided into forked panicles. *Leaves* mostly an inch and half long, opposite, entire, with a mid-rib and slender branched veins, of a cheerful green colour, paler beneath, and more or less clothed with pubescence, the upper ones sessile, ovate, acute, the lower ones ovate, acute, rounded, or heart-shaped at the base, and elevated upon a footstalk of greater or less length, sometimes as long as the leaf. *Flowers* pure white, numerous, in terminal forked panicles, with a solitary one from the axis of the divisions. *Peduncles* about an inch long, slender, downy, erect in flower, recurved when in fruit. *Calyx* in five lanceolate segments, with membranous margins, smooth, or slightly downy, with three or five slender ribs. *Petals* about as long again as the calyx, deeply divided into two narrow lobes. *Stamens* on slender *filaments*, with ovate yellow *anthers*. *Styles* three, with obtuse *stigmas*. *Capsules* cylindrical, separating to below the middle into six linear valves. *Seeds* numerous, small, attached to a central linear elongated receptacle.

Habitat.—Moist woods, especially in the North of England and the Lowlands of Scotland.

Perennial; flowering in May and June.

This species has sometimes been mistaken for *Cerastium aquaticum*, Linn., from which, however, it is readily distinguished by its petiolated heart-shaped leaves in the lower part of the stem, independent of other characters. It varies considerably in the hairiness of the stem and leaves, which are sometimes nearly smooth, except on the margins.

Sect. 2. *DICHODON*, Bartling. Koch Flora Germ. et Helvet, p. 118. *Capsule bursting at the apex, with six teeth; columella linear, elongated; stem round.*

2. *S. cerastoides*, Linn. (Fig. 730.) *Alpine Stitchwort*. Stem round, procumbent at the base, with an alternate hairy line, about three flowered; peduncles hairy, after flowering reflexed; leaves sessile, oblong, lanceolate, acute, the lower ones obtuse; calyx downy, about half as long as the bifid petals.

α. Leaves hairy.

S. cerastoides, Linn.—*Cerastium nivale*, Don Mos.—*C. trigyrum*, Vill. delph. 3. p. 645. t. 46.—Hooker, British Flora, vol. i. p. 208.—De Cand. Prod. p. 1. p. 398.

β. *glabra*. Leaves smooth.

S. cerastoides.—Wulf in Jacq. Coll. v. 1. p. 254. t. 19.—English Botany, t. 911.—English Flora, vol. ii. p. 305.—Lindley, Synopsis, p. 53.—*β. triflora*.—De Cand Prod. p. 1. p. 398.

Root fibrous. *Stems* from three to four inches long, the base naked, procumbent, branched, becoming erect and leafy, round, with an alternate hairy line from one pair of leaves to another, terminating in

a solitary flower, or two or three on slender *peduncles*, hairy all over, and somewhat glutinous. *Leaves* opposite, sessile, oblong, lanceolate, acute, with a callous point, the upper ones sub-ovate, acute, the lower ones obtuse, tapering to the base, spreading, entire, with a mid-rib, and quite smooth, or hairy. *Flowers* large, white, erect, when in fruit drooping. *Calyx* of five lanceolate obtusely pointed segments, with a narrow membranous margin and downy mid-rib. *Petals* nearly as long again as the calyx, deeply cloven. *Stamens* with slender *filaments*, and small ovate *anthers*. *Styles* short, with downy *stigmas*, three, sometimes four or five. *Capsule* nearly as long again as the calyx, cylindrical, smooth, opening at the apex with six teeth, but sometimes with eight or ten, double the number of the styles. *Seeds* numerous, brown, roughish.

Habitat—On the mountains of Scotland, especially the Breadalbane range, and on a high mountain near Bantry, Ireland.—*Miss Hutchinson*.

Perennial; flowering in July and August.

This species is remarkable, as seeming to unite the genus *Stellaria* with that of *Cerastium*; its round stem with an alternate hairy line, will closely connect it with the following species, while its styles, being sometimes five, and the capsule with ten valves, seem to unite it with the *Cerastiums*, with which also it agrees in habit.

Sect. 3. INTERMEDIA. *Capsule separating to the middle or below into six valves; columella very short; stem round.*

3. *S. media*; *Withering*. (Fig. 731.) *Common Chickweed, or Stitchwort*. Stem procumbent at the base, round, with an alternate hairy line; leaves ovate, acuminate, above sessile, below petiolated; flowers lateral and terminal; calyx with lanceolate obtusely pointed segments, longer than the deeply bifid petals.

English Botany, t. 537.—English Flora, vol. ii. p. 301.—Hooker, British Flora, vol. i. p. 207.—Lindley, Synopsis, p. 52.

Root small, tapering. *Stems* slender, procumbent at the base, and rooting, branched and spreading, brittle, with a central tough fibre, round, with a lateral hairy line, alternating from one leaf to another. *Leaves* opposite, ovate, acute, entire, paler beneath, with a single mid-rib, smooth, ciliated on the margins towards the base, rarely scattered over with hairs, the upper ones sessile, the lower with broad longish footstalks, ciliated on the margin, or smooth. *Flowers* small, white, axillary, and solitary, sometimes crowded at the top of the stem, each on a slender *peduncle*, with a lateral hairy line, erect, or spreading when in flower, reflexed in fruit. *Calyx* in five lanceolate obtusely pointed segments, with a narrow membranous margin, a slender mid-rib, and obscure lateral veins, more or less downy or smooth. *Petals* as long or shorter than the calyx, deeply cleft into two narrow lobes. *Stamens* with slender *filaments* and roundish *anthers*, ten, but sometimes only five. *Styles* short, with obtuse *stigmas*. *Capsule* cylin-



731 *Stellaria media*



732 *Stellaria holostea.*



733 *Stellaria glauca.*



734 *Stellaria graminea.*



735 *Stellaria Babingtoni:*



736 *Stellaria scapigera*

dricul, as long or rather longer than the calyx, bursting to the middle or lower into six narrow valves. *Seeds* numerous, attached to a short central receptacle, dark dull brown, rough, with lines of elevated points.

Habitat.—Waste and cultivated places, everywhere.

Annual; flowering nearly the whole year.

This is an extremely common and variable plant in size and luxuriance. The seeds, as well as the leaves, are the favourite food of many small birds and poultry; and the plant, when boiled, forms a good vegetable not unlike spinach.

Sect. 4. *STELLARIA*. Koch in *Flora Germ. et Helv.* *Capsule separating to the middle or below into six valves; columella very short; stem angular.*

4. *S. holo'stea*, Linn. (Fig. 732.) *Greater Stitchwort*. Stem nearly angular, rough; leaves sessile, lanceolate, with a long acuminate point, rough on the margins and keel; panicle forked; bractea herbaceous; petals deeply bifid, as long again as the nerveless segments of the calyx.

English Botany, t. 511.—English Flora, vol. ii. p. 301.—Hooker, British Flora, vol. i. p. 207.—Lindley, Synopsis, p. 52.

Root small, fibrous. *Stem* slender and procumbent at the base, becoming erect and stouter, angular, from one to two feet high, rough on the angles, leafy, mostly simple, branched above in repeatedly forked panicles. *Leaves* opposite, sessile, from one to three inches long, of a somewhat glaucous green, narrow, lanceolate, with a long slender tapering point, having a single rib, rough, like the edges, with fine cartilaginous teeth. *Flowers* mostly numerous, large, and handsome, pure white, on long slender rough *peduncles*, erect in flower, drooping when in fruit. *Calyx* of five ovate lanceolate segments, with narrow membranous margins, roughish, and without ribs. *Petals* as long again as the calyx, deeply bifid. *Stamens* with slender *filaments* and ovate *anthers*, of a yellow colour. *Styles* simple, with downy spreading *stigmas*. *Capsules* globular, opening to below the middle, with six valves. *Seeds* brown, kidney-shaped, not very numerous.

Habitat.—Woods, hedges, and thickets; frequent.

Perennial; flowering in May.

In damp shady situations this species is often more than two feet high, supporting itself upon other plants by the roughness of its leaves and stems, and its numerous large white flowers render it a very ornamental spring decoration. In some parts of the country it is commonly called Cuckoo-flower, from its being one of the most conspicuous flowers in the fields and groves, when the welcome notes of the Cuckoo are first heard.

5. *S. glau'ca*, Withering. (Fig. 733.) *Glaucous Marsh Stitchwort*. Smooth; stem nearly erect, square; leaves linear, lanceolate, acute,

glaucous, sessile; panicle of few flowers, forked, or axillary; bractea membranous; petals deeply bifid, much longer than the three ribbed lanceolate acuminate segments of the calyx.

α. Flowers solitary.

English Botany, t. 825.—English Flora, vol. ii. p. 303.—Hooker, British Flora, vol. i. p. 207.—Lindley, Synopsis, p. 52.

β. paniculata. Flowers in forked panicles; bracteas membranous.

Root small, fibrous, the whole plant quite smooth, and of a pale glaucous hue. *Stem* square, procumbent at the base, becoming erect, simple, or branched. *Leaves* sessile, opposite, linear, lanceolate, with an acute point, from one to two inches long or longer, the keel prominent, stout, acute. *Flowers* large, pure white, few in a terminal forked panicle, or solitary from the leaves, on long slender *peduncles*, erect, *bracteas* in the paniculated variety, lanceolate, membranous, pale, with a green acute keel. *Calyx* of five lanceolate acuminate three ribbed segments, with pale membranous margins. *Petals* nearly as long again as the calyx, pure white, deeply bifid. *Stamens* with linear *filaments*, and ovate yellow or reddish *anthers*. *Styles* with linear downy *stigmas*, spreading. *Capsule* oblong, ovate, as long as the calyx.

Habitat.—Wet marshy places, on the margin of lakes, bogs, rivers, &c., especially in a sandy or gravelly soil; not very common.

Perennial; flowering in June and July.

This species is readily distinguished from all the others, by its perfectly smooth glaucous hue, the form of the calyx segments, and their relative size to the petals. It varies considerably in luxuriance, the length of the stem, and the number of its flowers, which are either paniculated or solitary from the axis of the upper leaves. The stem is either simple and erect, or branched and spreading; it mostly grows in dense patches, and when in full bloom has a remarkable pretty appearance, its pure white flowers and glaucous herbage rendering it a very conspicuous plant on the margin of rivers, ditches, or wet meadows.

6. *S. gramin'ea*, Linn. (Fig. 734.) *Lesser Stitchwort.* Stem smooth, spreading, square; leaves sessile, lanceolate, acuminate, ciliated at the base; panicle terminal, much branched and spreading; bractea membranous, ciliated; calyx segments three ribbed, ciliated, scarcely as long as the deeply bifid petals.

English Botany, t. 803.—English Flora, vol. ii. p. 302.—Hooker, British Flora, vol. i. p. 207.—Lindley, Synopsis, p. 52.

β acuminata. Leaves tapering from the base, the margins more or less finely ciliated, a deep dull green.

γ. undulata. Leaves lanceolate, acuminate, the margins more or less waved and crisped, somewhat ciliated, a pale green.

Root small, fibrous. *Stem* square smooth, simple or branched, more or less procumbent at the base, becoming erect, weak and slender, spreading, or stouter and erect. *Leaves* opposite, sessile, lanceolate,

acuminate, gradually tapering from the base to the point, narrow, of a palish green, not glaucous; in β . nearly as broad again as usual, and of a dull green, each with a prominent keeled mid-rib, the margins entire, more or less ciliated with soft curved hairs at the base; in β . the upper leaves especially ciliated with very short fine hairs, and in γ . the margins are waved, and more or less crisped, as well as being mostly finely ciliated. *Panicle* terminal, often leafy, much branched in a forked manner, with solitary flower from the axis of each division, and widely spreading. *Bracteas* lanceolate, acuminate, membranous, with a keeled mid-rib, and the margin ciliated with soft spreading hairs. *Flowers* white, numerous, small, on long slender smooth peduncles, erect, or spreading when in flower, reflexed in fruit. *Calyx* lanceolate, three ribbed, often downy, the margins with a narrow membranous border, more or less ciliated. *Petals* pure white, deeply bifid, as long or rather longer than the calyx. *Stamens* with slender *filaments*, and oblong *anthers*, of a yellow or reddish colour. *Styles* slender, spreading, with small downy *stigmas*. *Capsule* oblong, about half as long again as the calyx. *Seeds* numerous, pale brown, kidney-shaped, scarcely wrinkled.

Habitat.—Dry bushy or shady places. β . damp banks; frequent. Perennial; flowering in May and June.

This is an extremely variable plant, depending upon the soil and situation of its growth. The stem varies from a few inches long to one, sometimes near two feet, and is either simple or much branched; the panicle is large, much divided and spreading on every side, and the leaves gradually taper to the point, and not linear, with an acute point, and the margins are entire, scarcely ever rough, but more or less ciliated in those on the upper part of the branches always at the base, and the calyx segments are sometimes quite smooth, but generally very finely ciliated, like the bractea, with soft spreading hairs. It is readily known from *S. holostea*, by its smooth stem and leaves, its much larger branched panicle, and the leaves are all shorter, and not so much acuminate, and the calyx is three ribbed.

7. *S. Babingtoni*. (Fig. 735.) *Babington's much branched Stitchwort*. Stem smooth, square; leaves sessile, narrow, linear, lanceolate, quite smooth; panicle lateral, longer than the stem, slender, much branched and spreading; bractea membranous, lanceolate, acuminate, scarcely ciliated; calyx segments three ribbed, smooth, rather longer than the deeply bifid petals.

Root small, fibrous. *Stem* square, smooth, simple, rarely branched, procumbent at the base, erect above, slender. *Leaves* opposite, sessile, quite smooth, rarely there are a few hairs at the base, about an inch long, of a cheerful green, paler on the under side, with a prominent keeled mid-rib, narrow, linear, with a lanceolate point, and not as in the last species, tapering from the base upwards, but of an equal width,

three parts of the length often narrower towards the base, the margin quite smooth. *Panicle* lateral, the stem continued beyond it from two to six inches, and more leafy above the panicle than below it, the panicle much spreading, from six to eighteen inches long, slender, much branched, and divided in a forked manner, with a solitary flower from the axis of the division, erect, or spreading when in flower, reflexed in fruit. *Bracteas* lanceolate, acuminate, membranous, with a keeled mid-rib, the margins quite smooth, rarely with a few ciliated short scattered hairs. *Flowers* white, numerous, small, on long very slender smooth peduncles. *Calyx* quite smooth, conical at the base, in five lanceolate three ribbed segments, with a narrow membranous margin, sometimes fringed with a few fine hairs, before expanding, and as long or rather longer than the deeply bifid *petals*, of narrow lobes. *Stamens* with long slender *filaments*, yellow ovate *anthers*, of two cells. *Styles* longer than the calyx, with slender downy *stigmas*, rolled back. *Capsule* cylindrical, rather longer than the calyx, smooth and shining. *Seeds* numerous, small, kidney-shaped, a dull leaden brown, strongly marked with wrinkled lines, smooth.

Habitat.—Damp banks and boggy places, in the Swann pool near Lincoln.

Perennial; flowering in June and July.

Specimens of this plant we collected in June, 1834, and have since had excellent specimens of the same sent to us by Dr. Nicholson from the same place. Though nearly allied to the last species we have no doubt it will be found distinct from it, though we have not had any opportunity of proving its constancy to specimens above described by cultivation. It is a remarkable looking plant when growing, from the very much branched spreading panicles, mixing themselves together in a confused manner, and almost without any appearance of leaves amongst them, for they are quite naked, and the stem, which is continued, is frequently not half as long as the panicle; besides, however, the habit of its growth, the leaves are narrower, linear, and not with an acuminate point, the petals are shorter, the capsule scarcely longer than the calyx, often shorter, and the seeds are a darker colour, much more wrinkled, and the whole plant is nearly free from hairs. There are very rarely a few at the base of the leaves, or the margins of the calyx, as well as the bracteas.

8. *S. scapi'gera*, Willd. (Fig. 736.) *Many-stalked Stitchwort*. Stem square, smooth, shorter than the flower stalks; leaves linear, lanceolate, the margins downy; crowded flowers on long peduncles, in a terminal short branched panicle; bractea lanceolate, membranous, downy; petals deeply bifid, as long as the lanceolate acute three ribbed downy segments of the calyx.

English Botany, t. 1269.—English Flora, vol. ii. p. 304.—Hooker, British Flora, vol. i. p. 208.—Lindley, Synopsis, p. 52.

Root small, fibrous. *Stem* erect, from one to two inches high, simple, rarely branched, square, smooth, crowded in the lower part with leaves. *Leaves* linear, lanceolate, about an inch long, with a keeled mid-rib, the margins fringed with short soft hairs, or roughish, opposite, a cheerful green, becoming reddish as they fade and remain long upon the plant. *Flowers* mostly numerous, terminating the stem in a short branched forked panicle, or the flowers solitary, on long peduncles, in a cluster. *Peduncles* slender, square, two inches long, or longer. *Bractees* thin, membranous, lanceolate, with a tapering point, keeled with the mid-rib, and fringed with soft hairs. *Calyx* of lanceolate acute three ribbed segments, downy, with a membranous margin. *Petals* white, as long as the calyx, deeply divided into linear acute segments. *Stamens* with linear awl-shaped *filaments*, as long as the petals. *Anthers* roundish, of a reddish colour. *Styles* slender, spreading, with downy curved *stigmas*.

Habitat.—Hills on the north of Dunkeld, and about Loch Nevis, Scotland.—*Mr. G. Don*.

Perennial; flowering in June.

This is a very remarkable plant, quite unlike any other known species, and does not appear to have been found in any place out of England. It is very rare, and we have not been able to procure wild specimens; but our cultivated ones do not differ from them, except being rather larger and stouter plants.

SECT. 5. *LARBREA*, *St. Hilaire*. Koch. *Flora Germ. et Helv.* p. 119.

Capsule separating to the middle or below into six valves, attenuated at the base; the calyx segments united at the base into a short funnel-shape; stem square.

9. *S. uliginosa*, *Murray*. (Fig. 737.) *Bog Stitchwort*. Stem square, smooth, branched, spreading; leaves ovate lanceolate, with a callous tip, sessile, smooth, ciliated at the base; panicle forked, terminal and lateral; bractea lanceolate, membranous, smooth; calyx in narrow three ribbed lanceolate segments, smooth, and united into a conical base, longer than the small bifid petals.

English Botany, t. 1074.—English Flora, vol. ii. p. 303.—Hooker, British Flora, vol. i. p. 208.—*S. graminea*, γ . Linn.—*S. aquatica*, *Pollich*.—De Cand. Prod. p. 1. p. 398.—*Larbrea aquatica*, *St. Hilaire*.—De Cand. Prod. p. 3. p. 365. (in note.)—Lindley, Synopsis, p. 51.

β . *undulata*. Leaves glaucous, with a waved margin.

Root small, fibrous. *Stem* smooth, square, branched and spreading, slender, from four to twelve inches high. *Leaves* opposite, sessile, ovate lanceolate, or elliptic lanceolate, with an obtuse callous tip to the point, about half an inch long, quite smooth, except a few soft slender spreading hairs at the base, which are not always present, mid-rib slender, keeled below, of a dull pale green, sometimes glaucous, the margin entire or waved. *Panicle* of few flowers, lateral and terminal,

branched in a forked manner, with a solitary flower from the axis of the divisions, erect in flower, spreading when in fruit. *Bractea* pale, membranous, lanceolate, entire, with a keeled mid-rib. *Peduncles* angular, an inch long, swollen above into a conical angular base, the narrow lanceolate three ribbed segments of the *calyx*, quite smooth, with a membranous border, and somewhat united at the base. *Petals* small, deeply bifid, shorter than the calyx. *Stamens* with slender awl-shaped *filaments*, and yellow ovate *anthers*, of two cells. *Styles* slender, spreading, with downy curved *stigmas*. *Capsule* ovate, about as long as the calyx. *Seeds* numerous, small, bright brown, kidney-shaped, rough, with elevated points.

Habitat.—Ditches and wet places; frequent.

Annual; flowering in June.

ORDER IV.

PENTAGYN'IA. 5 STYLES.

GENUS XVII. MALA'CHIUM.—FRIES. *Malachium*.

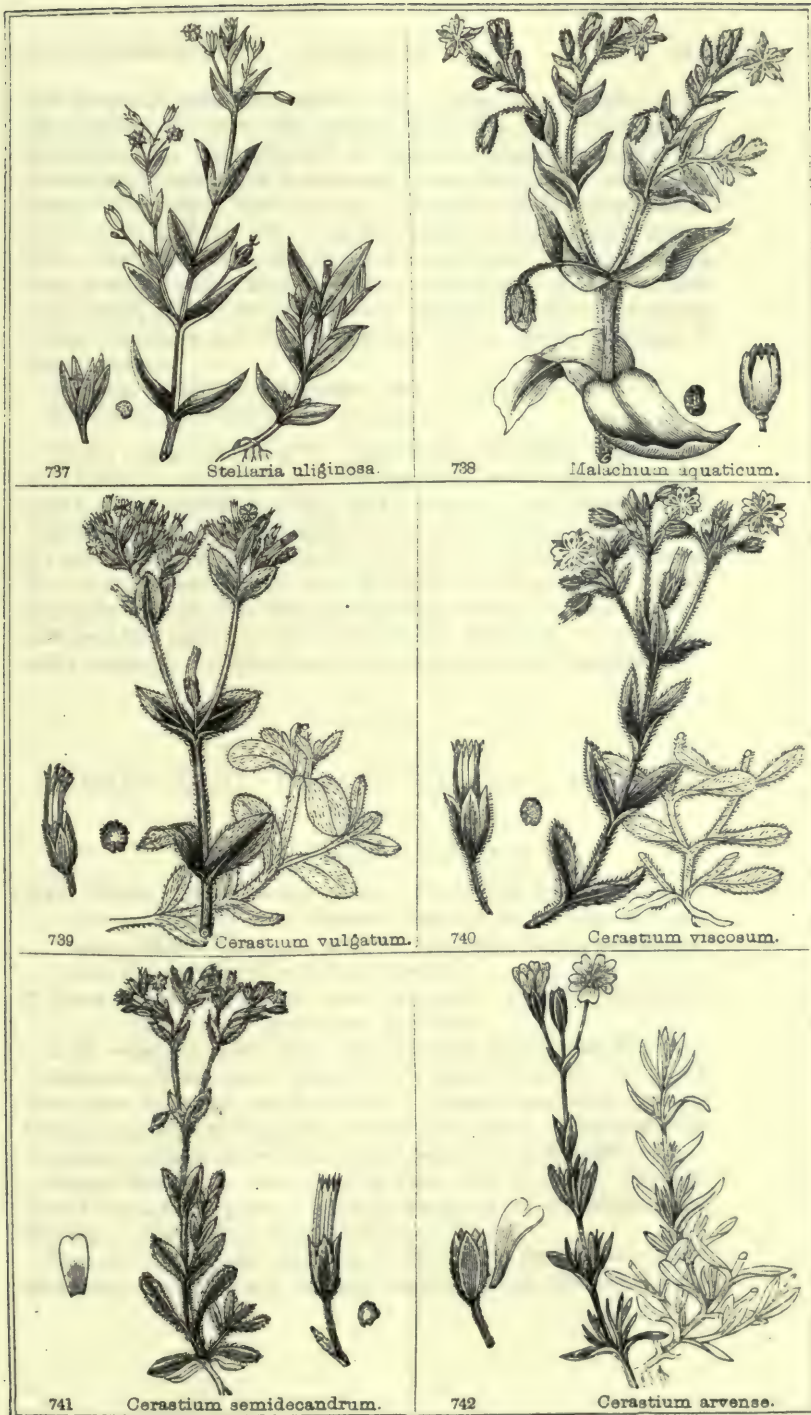
Nat. Ord. CARYOPHYLL'LEÆ. JUSS.

GEN. CHAR. *Calyx* of five pieces. *Petals* five, bipartite, or emarginate. *Stamens* ten. *Capsule* of five valves, the valves at the end bifid.

1. *M. aquaticum*, Fries. (Fig. 738.) *Water Chickweed*, or *Malachium*. Stem procumbent at the base, and rooting; leaves ovate, heart-shaped, sessile; panicle forked, spreading, glandulose, pubescent; bractea herbaceous; flowers solitary, erect; fruit pendulous; petals deeply cleft.

Cerastium aquaticum, Linn.—English Botany, t. 538.—English Flora, vol. ii. p. 335.—Hooker, British Flora, vol. i. p. 217.—Lindley, Synopsis, p. 51.

Root small, fibrous, with somewhat creeping underground stems. *Stems* procumbent at the base, and rooting from the axis of the leaves, spreading, from one to two feet long, or more, simple or branched, round, or somewhat angular, leafy, smooth below, thickly clothed above with short glandular pubescence, rendering it viscid. *Leaves* opposite, large, an inch and half long, a bright cheerful green, ovate, acute, with a heart-shaped base, sessile, the lower ones sometimes on footstalks, paler on the under side, with a stout mid-rib and slender branched lateral veins, smooth, the upper ones more or less downy, the margin entire, or frequently waved and crisped. *Panicle* terminal, large, straggling, branched in a forked manner, with leafy bractea, and



the *flowers* on peduncles, about an inch long, from the axis of the divarications are erect, but when in fruit drooping. *Calyx* in five ovate lanceolate segments, with a narrow membranous margin, and clothed with short viscid pubescence. *Petals* deeply cleft into narrow lobes, rather longer than the calyx. *Stamens* with slender *filaments*, nearly as long as the calyx. *Anthers* roundish, heart-shaped, of two cells. *Styles* five, short, with linear downy *stigmas*. *Capsule* ovate, as long or rather longer than the calyx, opening with five valves, each valve mostly bifid at the apex. *Seeds* numerous, attached to a central conical receptacle, a dull brown, kidney-shaped, rough, with lines of elevated points.

Habitat.—Sides of rivers, ditches, and watery places.

Perennial; flowering in June and July.

This is a large straggling but variable plant, sometimes quite simple, with a small terminal panicle, and not unfrequently much branched, with a widely spreading panicle, and it is more or less thickly clothed with short jointed hairs, terminating in a viscid gland, and the leaves are either quite smooth or clothed more or less thickly with the same kind of pubescence. It is allied to *Stellaria nemorum*, but is readily distinguished from that plant by its sessile leaves, its more branched and spreading panicles, its ovate lanceolate thick leafy texture of the calyx segments, the five styles, and the five-cleft valved capsules.

GENUS XVIII. CERA'STIUM.—LINN. *Mouse-ear* *Chickweed*.

Nat. Ord. CARYOPHYLLÆÆ. JUSS.

GEN. CHAR. *Calyx* of five pieces. *Petals* five, bipartite or emarginate. *Stamens* ten. *Capsules* bursting at the top with ten teeth.—Name from κερας, a horn; in allusion to the long curved horn-like capsules of some of the species.

* *Petals* as long or shorter than the calyx. *Capsule* cylindrical, longer than the calyx.

1. *C. vulgatum*, Linn. (Fig. 739.) *Common broad-leaved Mouse-ear Chickweed*. Stem nearly erect, hairy; leaves roundish, ovate, the lower ones narrowed into a footstalk; panicle sub-capitate; bractea herbaceous; calyx oblong, hairy, as long as the pedicle; petals equalling the calyx; capsule curved upwards, as long again as the calyx.

English Botany, t. 789.—English Flora, vol. ii. p. 330.—Hooker, British Flora, vol. i. p. 215.—Lindley, Synopsis, p. 51.—*C. glomeratum*, Thuillier.—Koch, Flora Germ. et Helv. p. 121.

Root of long slender branched fibres. *Stem* procumbent at the base, much branched and rooting, becoming erect, from four to six

inches high, more or less branched in a forked manner, with a solitary flower from the axis. *Leaves* opposite, roundish, ovate or oblong, the upper ones sessile, the lower tapering into a footstalk, and clothed with soft slender spreading hairs, the margins entire, having a mid-rib, broad at the base. *Flowers* numerous, in terminal sub-umbellate heads, each elevated on a downy *pedicle*, about the length of the calyx. *Bractea* small, leafy. *Calyx* of five lanceolate segments, clothed with hairs, each with a narrow pale membranous margin, rather broader on the inner ones. *Petals* white, about as long as the calyx, cloven half way down. *Stamens* with slender *filaments*, and small roundish yellow *anthers*, of two cells. *Styles* short, with downy *stigmas*. *Capsule* cylindrical, as long again as the calyx, slightly curved upwards, striated with ten slender ribs, terminating between ten lanceolate erect teeth, with the margins rolled back. *Seeds* numerous, very small, pale, yellowish brown, kidney-shaped, roughish, with elevated points on the outer edges.

Habitat.—Fields, pastures gardens, road sides, &c.; frequent.

Annual; flowering from April to June.

This is a very common and very variable plant. It is sometimes scarcely branched, except at the top, but not unfrequently also it is branched from the base, and has either a solitary flower from each axis or is without it; the leaves are more or less roundish, ovate or oblong, with an acute or obtuse point, and the whole plant is clothed with spreading simple or glandular hairs, or sometimes nearly smooth, and the upper part of the stem is sometimes viscid, from the hairs being tipped with small glands, but more frequently it is not so, but simply hairy.

2. *C. visco'sum*, Linn. (Fig. 740.) *Narrow-leaved Mouse-ear Chick-weed*. Stem nearly erect, hairy, viscid; leaves oblong, lanceolate, or ovate, the lower ones narrowed into a footstalk; panicle branched, sub-umbellate; bractea with a membranous margin; calyx oblong, with a smooth membranous margin, half as long as the pedicles; petals about as long as the calyx; capsule curved upwards, nearly as long again as the calyx.

English Botany, t. 790.—English Flora, vol. ii. p. 331.—Hooker, British Flora, vol. i. p. 215.—Lindley, Synopsis, p. 51.—*C. Triviale*, Link.—Koch. Flora Germ. et Helvet, p. 122.

Root fibrous. *Stem* shortly procumbent at the base, becoming erect, from three to six or eight inches high, mostly much branched below, simple upwards, round, leafy, especially at the base it is much crowded, more or less thickly clothed with hairs, which are simple or glandular, and often viscid in the upper part of the stem. *Leaves* opposite, oblong lanceolate, or oblong ovate, sessile, the lower ones tapering into a footstalk, each with a keeled mid-rib. *Panicle* terminal, in forked branches, bearing sub-umbellate clusters of numerous flowers, each elevated on a downy *pedicle*, about as long again as

the calyx. *Bracteas* ovate lanceolate, herbaceous, the upper ones with a narrow membranous margin. *Calyx* of five ovate lanceolate segments, downy, with a mid-rib and smooth pale membranous margin. *Petals* bifid, about as long as the calyx. *Stamens* with slender *filaments*, and roundish ovate *anthers*, yellow, of two cells. *Styles* short, with downy *stigmas*. *Capsule* pale thin smooth membranous cylindrical, as long again as the calyx, somewhat curved upwards with ten slender ribs, terminating between the ten erect lanceolate obtuse teeth at the mouth, having the margins rolled back. *Seeds* numerous, small, kidney-shaped, dark brown, rough, with semi-circular lines of elevated points.

Habitat.—Walls, waste places, poor meadows, &c.; frequent.

Perennial; flowering during the summer months.

This species, though nearly allied to the former, is readily distinguished by its oblong leaves, less downy segments of the calyx, having a broadish smooth membranous margin, as well as the bracteas, and the pedicle of the fruit is often twice or three times as long as the calyx. The whole plant is more or less hairy and viscid; it is very variable in size, and the base is often much crowded with leaves, and they are of a deeper duller green than those of *C. vulgatum*, the stem frequently dark purplish red.

3. *C. semidecan'drum*, Linn. (Fig. 741.) *Little Mouse-ear Chick-weed*. Stem erect, or ascending, hairy, viscid; leaves oblong and ovate, the lower ones narrowed into a petiole; panicle branched, sub-aggregate; all the bractea and calyx segments with a pale membranous eroded margin; pedicles longer than the calyx; petals slightly cloven, about as long as the calyx.

English Botany, t. 1630.—English Flora, vol. ii. p. 331.—Hooker, British Flora, vol. i. p. 216.—Lindley, Synopsis, p. 51.

β. *pumilum*. Lower bractea without a membranous margin; petals more deeply cloven. Lindley, Synopsis, p. 51.

C. pumilum, Curt. Lond. fas. c. 6. t. 30.—Koch. Flora German. et Helvet. p. 122.

γ. *tetrandrum*. Calyx petals and stamens mostly four. Lindley, Synopsis, p. 51.

C. tetrandrum, Curt.—Lond. fas. c. 6. t. 31.—*Sagina cerastoides*, Smith.—English Botany, t. 166. (bad).—Hooker, British Flora, vol. i. p. 216.—English Flora, vol. ii. p. 332.

Root small, branched, fibrous. *Stem* from two to six inches high, erect or ascending, simple or branched at the base, round, more or less clothed with hairs, which are simple, or tipped with a gland, especially in the upper part. *Leaves* opposite, ovate, or oblong ovate, the lower ones tapering into a broadish footstalk, somewhat paler beneath than above, with a stout mid-rib, and more or less clothed with short hairs. *Panicle* terminal, of forked spreading branches, somewhat clustered at the extremity, and with a solitary flower from the axis of the divarica-

tions. *Bracteas* ovate lanceolate, with a pale thin membranous mostly jagged border; in *β. pumilum* the lower ones are entirely herbaceous. *Flowers* small, white. *Peduncles* longer than the calyx, sometimes deflexed, but rarely so when in fruit. *Calyx* of five, rarely four segments, ovate lanceolate, downy, and mostly viscid, with a pale thin membranous margin, mostly jagged at the apex. *Petals* about as long as the calyx segments, and more or less deeply cloven. *Stamens* ten, but frequently only five, and sometimes four, nearly as long as the petals, anthers small, ovate, yellow. *Styles* short, spreading, five, sometimes four. *Capsule* cylindrical, membranous, longer than the calyx, straight, or towards the apex curved upwards; it is not, however, uncommon to find it on the same plant both straight and curved, and scarcely longer than the calyx, or nearly as long again. *Seeds* numerous, small, pale brown, flattish, roundish, ovate, with a rough margin.

Habitat.—Old walls, dry sandy and waste places; not unfrequent. Annual; flowering from March to June.

This is an extremely variable species, respecting which the English Botanist has been much confused, on account of the descriptions and figures given of the *C. tetrandrum* having been made from cultivated specimens, a mistake which is so apt to lead to error, especially in such plants as the present, which we observe to vary so greatly even in the wild state, from a change in the situation of its growth from a poor dry to a more luxuriant soil; and our own observations with respect to the union of these two species confirm the opinions of Hooker, Greville, Lindley, and others. The hairiness and viscosity of the whole plant seems also to depend upon the situation of its growth, for, when grown in a good moist soil, the hairiness, for the most part, disappears; but if in a dry sterile one not only is it more hairy, but the hairs, especially in the upper part of the stem and branches, become tipped with small globose fleshy glands, which secrete a viscid fluid. This admirable adaptation to circumstances will not fail to excite in the mind of the student his admiration, and more than interest him when he knows that He who designed them made nothing without an object, and only to answer some good end; and as the hairiness and viscosity disappear under one condition, we may conclude that under such circumstances they are not needed in the economy of the plant, but on the other hand when they are found in an opposite condition of the plant, the same reasoning will bring us to the conclusion that they are requisite for the purposes of the plant: and as in the one case where the plant finds a supply of moisture in the soil in which it grows, and the hairs and glands are not present, and in the other, where the soil is dry, and the plant provided with these hairs and glands, the office which they perform in the economy of the plant may be sought for in their being a means of providing it with moisture. The changes here observed to take place in this species also takes place in the others, as well as those of other genera.



743

Cerastium alpinum.



744

Cerastium latifolium.



745

Spergula arvensis.



746

Spergula nodosa.



747

Spergula saginoides.



748

Spergula subulata.

** *Petals twice as long as the calyx.*

4. *C. arven'se*, Linn. (Fig. 742.) *Field Chickweed*. Stem prostrate at the base and rooting; leaves linear lanceolate, or linear, crowded below, more or less pubescent; bracteas with a membranous margin; peduncles glandular, pubescent; petals twice as long as the calyx.

English Botany, t. 93.—English Flora, vol. ii. p. 333.—Hooker, British Flora, vol. i. p. 216.—Lindley, Synopsis, p. 51.

β. oblongifolium. Leaves oblong, acute, smooth, the margins ciliated.

Roots fibrous, branched. *Stems* branched, procumbent at the base and rooting from the axis of the leaves, round, becoming erect, from three to twelve inches high, slender, and more or less clothed with short hairs, pointed downwards, and in the upper part of the stem frequently glandular. *Leaves* opposite, sessile, linear, with an obtuse point, from half an inch to an inch long, single ribbed, downy and ciliated on the margins, often a fascicle of leaves from the axis, crowded below the barren branches cespitose; in *β. oblongifolium* the leaves are much shorter, oblong, with an acute point, smooth, with the margins more or less ciliated. *Inflorescence* a terminal panicle of a few large white flowers, the bracteas ovate, with a broad membranous margin. *Peduncles* erect, clothed with simple or glandular down. *Calyx* of five ovate lanceolate segments, downy, with a membranous margin, broader on the inner than the outer segments, and half as long as the inversely heart-shaped petals. *Stamens* with awl-shaped filaments, about as long as the calyx. *Styles* slender, with downy stigmas. *Capsule* cylindrical, oblong, shorter than the calyx.

Habitat.—Dry and sandy fields and banks; not unfrequent in England, less common in Scotland and Ireland.

Perennial; flowering in June and July.

This, though a small plant, is frequently highly ornamental on banks favourable in soil and situation. It spreads in thick patches, and produces so great a number of pure white flowers as to give the banks almost the appearance of being clothed with a waving mantle of snow. It produces an abundance of seeds, which are the favourite food of numerous small birds.

5. *C. alpinum*, Linn. (Fig. 743.) *Hairy Alpine Chickweed*. Stem creeping, sterile branches rosulate; flowering stems ascending; flowers solitary, or several in a forked panicle; leaves elliptic-ovate, nearly smooth, or densely woolly; bracteas herbaceous, with a narrow membranous margin; pedicles in fruit, reflexed.

English Botany, t. 472.—English Flora, vol. ii. p. 334.—Hooker, British Flora, vol. i. p. 217.—Lindley, Synopsis, p. 51.

Root fibrous, with branched creeping underground stems, flowering stems ascending, mostly numerous, from two to four inches high, round, simple or branched, terminating in a solitary flower, or a forked panicle of several flowers, mostly with a solitary one from the axis,

nearly smooth, or most frequently clothed with soft spreading silky hairs. *Leaves* in pairs, sessile, ovate, elliptic or elliptic-lanceolate, having a mid-rib, and clothed more or less thickly with soft woolliness, crowded in the lower part of the stems, distant above, and crowning the barren stems in a rosaceous manner. *Bracteas* ovate, herbaceous, with a narrow membranous margin. *Pedicles* twice as long as the calyx, or longer. *Calyx* of five elliptic-lanceolate segments, with a somewhat obtuse point, the margins with a thin membranous border, more or less thickly clothed with woolliness. *Petals* as long again as the calyx, white, cleft in a heart-shaped manner. *Stamens* with awl-shaped filaments, about as long as the calyx. *Anthers* ovate, yellow. *Styles* slender, with downy stigmas. *Capsule* broadly oblong, smooth, shining, about twice as long as the calyx, reflexed with the pedicle.

Habitat.—Frequent on the Highland Mountains of Scotland; very rare in Wales.

Perennial; flowering from July to August.

This is an extremely variable plant in the shape and size of the leaves, and the woolliness, which is of soft slender silky jointed hairs, mostly simple; but some of those upon the peduncles are frequently terminated with a small gland, which secretes a glutinous fluid, and sometimes the stems are clothed with the same, and at other times the whole plant is nearly smooth, but these are only varieties seeming to depend upon the variety of situation or soil in which they chance to have grown.

6. *C. latifolium*, Linn. (Fig. 744.) *Broad-leaved Alpine Chickweed*. Stem cespitose, procumbent; the sterile branches densely cespitose; flowering stems erect, one to three flowered; leaves elliptic or lanceolate; bracteas herbaceous; pedicels after flowering reflexed; petals twice as long as the calyx.—Koch.

English Botany, t. 473.—English Flora, vol. ii. p. 334.—Hooker, British Flora, vol. i. p. 217.—*C. alpinum*.— β . *piloso-pubescent* Benthams.—Lindley, Synopsis, p. 51.

This we are much disposed to think has not any specific character, by which it can be distinguished from *C. alpinum*, and its varieties. The leaves vary both in size and shape, and the hairiness is not to be depended upon as a specific character, as we have observed the leaves nearly smooth, as well as densely clothed with woolly pubescence. The stem is slender, and bears fewer flowers than is common with *C. alpinum*; the pedicles are also longer, and often without bractea: the flowers and fruit are similar.

Habitat.—Mountains of Wales and Scotland; very rare.

Perennial; flowering in July and August.

GENUS XIX. SPERGULA.—LINN. *Spurrey*.

Nat. Ord. CARYOPHYLLÆE. JUSS.

GEN. CHAR. *Calyx* of five pieces. *Petals* five, entire. *Stamens* ten, or by abortion five. *Styles* five. *Capsule* of five valves, many seeded.—Name from *Spargo*, to scatter; from the circumstance of its widely scattering its seeds.

* *Leaves* apparently whorled, not united at the base.

1. *S. arvensis*, Linn. (Fig. 745.) *Corn Spurrey*. Leaves linear, subulate, in fasciculated whorls, with minute membranous stipules at the base; pedicles reflexed in fruit; seeds globoso-compressed, roughish, with a narrow winged margin.

English Botany, t. 1535.—English Flora, vol. ii. p. 336.—Hooker, British Flora, vol. i. p. 217.—Lindley, Synopsis, p. 48.

β. *pentandra*. Flowers usually pentandrous; seeds with a broader winged margin.

English Botany, t. 1536.—*S. arvensis*.—β. English Flora, vol. ii. p. 337.

Root small, tapering. *Stem* from six to eighteen inches high, mostly branched from the base and spreading, round, smooth or downy, with distant whorls of leaves, swollen under each joint, above somewhat angular, and more viscid than below. *Leaves* opposite, linear, awl-shaped, roundish, somewhat channeled above, smooth or slightly downy, from one to two inches long, with a fascicle of numerous leaves from the axis, giving them a whorled appearance, accompanied at the base with a pair of angular membranous stipules, very short. *Panicle* terminating the stem and branches, forked, spreading, with a solitary flower from the axis. *Pedicles* slender, more or less clothed with glandular pubescence, each with a pair of stipules at the base, spreading in flower, reflexed when in fruit. *Calyx* in five ovate concave obtuse segments, with a narrow membranous margin, and more or less clothed with glandular pubescence. *Petals* ovate, white, rather longer than the calyx. *Stamens* ten, or often five, on short filaments, with yellow ovate anthers, of two cells. *Styles* short five. *Capsules* ovate, acute, rather longer than the calyx, opening with five valves to about the middle. *Seeds* numerous, small, roundish, compressed in a lenticular shape, smooth or rough, with elevated points, and surrounded with a simple or crenated pale membranous border, of greater or less width.

Habitat.—Corn fields; very common, especially in a light sandy soil.

Annual; flowering during the summer months.

This in many parts of the country is an extremely common and very troublesome weed, and is not with us applied to any particular use;

but in Holland, Germany, France, &c. it is often sown with the corn, for the purpose of affording a supply of food to sheep and cattle when turned into the stubble, and it is said to improve the flavour of the mutton, and makes a richer milk and finer flavoured butter. The seeds, as well as the whole plant, are a very favourite food of fowls, and are thought to cause them to lay a greater number of eggs, and to improve the flavour. It does not, however, appear that Spurrey could be cultivated with us with any great advantage, except as it appears to be a very nutritive plant, grows quickly, and flourishes well on poor sandy soil; it might with some advantage be encouraged on waste lands. In Norfolk it is called *pick-purse*, and in Scotland it is commonly known by the name of *yarr*.

**** Leaves opposite, united at the base.**

2. *S. nodo'sa*, Linn. (Fig. 746.) *Knotted Spurrey*. Leaves awl-shaped, opposite, united at the base, without stipules, smooth, the upper ones with crowded fascicles of leaves from the axis; pedicles erect in flower and fruit; petals much longer than the calyx.

English Botany, t. 694.—English Flora, vol. ii. p. 338.—Hooker, British Flora, vol. i. p. 218.—Lindley, Synopsis, p. 48.

Root of slender branched fibres. *Stems* numerous, slender, simple or branched, erect, spreading or prostrate, roundish, or somewhat angular, quite smooth, numerously jointed, each joint with a pair of opposite linear awl-shaped leaves, united with a membranous base, without stipules, about half an inch long, the upper ones only bearing from the axis a fascicle of short crowded leaves. *Flowers* seldom more than two or three on the upper part of the branches, rather large, pure white, on slender erect pedicles. *Calyx* of five ovate pieces, with a narrow pale membranous margin, the outer ones obtuse, the inner pointed. *Petals* ovate, obtuse, with a short claw, pure white, about as long again as the calyx. *Stamens* ten, on slender filaments, about as long as the calyx. *Anthems* ovate, yellow, of two cells. *Styles* five, spreading, with downy stigmas. *Capsule* ovate, of five valves, rarely perfected.

Habitat.—Wet marshy places, especially in a sandy soil.

Perennial; flowering in July and August.

3. *S. saginoides*, Linn. (Fig. 747.) *Pearl-wort Spurrey*. Leaves awl-shaped, with a bristle point, opposite, united at the base, without stipules, smooth; pedicles long, erect in flower and fruit; petals shorter than the calyx; capsule twice as long.

English Botany, t. 2105.—English Flora, vol. ii. p. 339.—Hooker, British Flora, vol. i. p. 218.—Lindley, Synopsis, p. 48.

Root small, of branched fibres. *Stems* numerous from the same root, erect, spreading or procumbent, from two to three inches long, simple or branched, round, smooth, leafy. *Leaves* opposite, awl-shaped, with a fine bristle point, united at the base, without stipules,

smooth, about half an inch long, on the upper part of the stem shorter, those from the root longer. *Pedicles* solitary, terminal, naked, slender, erect, often as long as the rest of the plant, smooth. *Flowers* drooping, white. *Calyx* of five equal ovate segments, obtuse, slightly swollen at the base, obscurely ribbed, the margin membranous. *Petals* ovate, rather shorter than the calyx. *Stamens* ten, rarely five, on slender *filaments*, with yellow *anthers*, ovate. *Styles* erect after flowering, five. *Capsule* erect, longer than the calyx, opening with five lanceolate valves. *Seeds* numerous, smooth, brown, kidney-shaped.

Habitat.—On the Highland Mountains of Scotland; frequent.

Perennial; flowering in June and July.

This plant bears a great resemblance to *Sagina procumbens*, from which, however, it will be found upon examination to differ, not only in generic but specific characters also.

4. *S. subulata*, Swartz. (Fig. 748) *Awl-shaped Spurrey*. Leaves awl-shaped, with a bristle point, opposite, united at the base, without stipules, sub-ciliated; pedicles long, erect, downy, as well as the stem; petals and capsules as long as the calyx.

English Botany, t. 1082.—English Flora, vol. ii. p. 339.—Hooker, British Flora, vol. i. p. 218.—Lindley, Synopsis, p. 48.

Root small, of branched fibres. *Stems* numerous from the same root, tufted, erect, spreading or procumbent, slender, simple or branched, more or less scattered over with short slender glandular hairs. *Leaves* numerous, opposite, united at the base without stipules, awl-shaped, with more or less ciliated margins, keeled at the back, and the point terminated in a bristle. *Pedicles* long, slender, erect both in flower and fruit, more or less clothed with short viscid hairs, rarely without any. *Flowers* small, white, erect. *Calyx* of five equal ovate segments, with a membranous margin when dry, evidently keeled, and with a slender rib on each side, more or less downy and viscid. *Petals* obovate, about the length of the calyx. *Stamens* on slender *filaments*. *Anthers* small, yellow, ovate. *Styles* erect after flowering. *Capsule* as long as the calyx, or rather longer, bursting with five lanceolate valves. *Seeds* numerous, minute, pale brown, kidney-shaped, smooth.

Habitat.—Dry pastures, and waste sandy places.

Perennial; flowering from July to August.

This species, though nearly allied to the last, is distinguished by the viscid downiness of the whole plant, the more awl-shaped leaves with a more tapering point, and longer bristle at the apex, the ciliated margins, and the long downy viscid pedicles, as well as the keeled ribbed downy calyx segments.

GENUS XX. OXA'LIS.—LINN. *Wood-sorrel.*

Nat. Ord. OXALI'DEÆ. DE CAND.

GEN. CHAR. *Calyx* of five pieces. *Petals* five, often united at the base. *Stamens* ten, the filaments often slightly united at the base, the five outer ones shorter. *Styles* five. *Capsule* five angled, five or ten valved, five celled. *Seeds* with a fleshy *arillus*.—Name from *οξύς*, *sharp* or *acid*; some of the species containing in their juices oxalic acid.

1. *O. Acetos'ella*, Linn. (Fig. 749.) *Common Wood-sorrel.* Leaves all radical, ternate; leaflets inversely heart-shaped, pubescent; scape single flowered, longer than the leaves, with a pair of bracteas above; the middle petals notched; rhizoma scaly.

English Botany, t. 762.—English Flora, vol. ii. p. 323.—Hooker, British Flora, vol. i. p. 214.—Lindley, Synopsis, p. 59.

Root with long creeping cord-like underground stems, with here and there a tuft of fibres and fleshy scaly rhizomas. *Stem* none. *Leaves* all radical, on slender erect footstalks, mostly scattered over with hairs, pale, often pinkish, and bearing at the top three sessile or nearly sessile leaflets, of a fine pale cheerful green colour, somewhat paler beneath than above, becoming pink, inversely heart-shaped, finely veined, and more or less clothed with pubescence. *Scape* round, slender, mostly longer than the leaves, scattered over with hairs, and bearing above the middle a pair of ovate membranous bractea. *Flowers* solitary, terminal. *Calyx* of five ovate oblong thin pieces, equal, hairy. *Petals* much longer than the calyx, oblong, more or less emarginate, with a short claw, having on each side of it a gland, by which they are united together, white or pinkish, with finely penciled veins, of deep purple colour. *Stamens* ten, on awl-shaped filaments, in two rows, mostly united at the base, the outer row shorter than the inner. *Anthers* ovate, yellow, of two cells. *Styles* long, slender, with feathery stigmas. *Capsule* narrow, of five angles, opening with five valves, sometimes ten, five celled. *Seeds* numerous, invested with a fleshy arillus.

Habitat.—Woods and shady places; frequent.

Perennial; flowering in May, and in lofty alpine situations as late as August.

The Wood-sorrel is an extremely pretty ornamental plant in the shady woods and groves in many parts of the country, clothing them with the beautiful garment of its cheerful looking leaves of delicate green, and decorated with its handsome drooping flowers of pure white, finely ramified with purple veins. The leaves on the under side are frequently of a dark purple colour, and during the day the leaflets are horizontally extended, but on the approach of evening they are drooping downwards over its stalk. This sensitiveness in the movement of



749

Oxalis acetosella



750

Oxalis corniculata.



751

Sedum telephium.



752

Sedum villosum.



753

Sedum dasyphyllum.



754

Sedum anglicum.

the leaflets of the plant before us is by no means a peculiarity; but as it is a familiar example that may be observed by most persons, we more particularly notice it as an illustration of some of the very interesting investigations for the student in the economy of vegetable life. In the leaf it is pretty well ascertained that the fluids of the plant undergo the most important changes to their further elaboration, not only for the perfection of the structure of the plant, but for the perfect formation of its peculiar secretions; and to the accomplishment of this end the action of light is one of the most important agents, and, therefore, we see the leaflets during the day are fully exposed to its influence; and by this movement another object is attained, namely, the expanded leaflets prevent, by their projection forming a covering over the roots, so great an evaporation of moisture as would otherwise take place; but during the night, when the heat of the day is gone, and the dew begins to be deposited, the leaflets fall, that the roots may be fully exposed to the influence of its deposition, to the invigoration of the plant, and supplying it with that moisture which is evaporated from the leaves during the day. Thus far it may be observed are some of the results consequent on the movement of the leaflets; but what the causes of this movement in the leaflets are we must leave for the further investigation of the student: to state the imperfect knowledge which we possess of these causes would occupy more space than we can here be allowed.

Another result in consequence of these changes is readily ascertained: on tasting the leaves, it will be found that the juices are become of a pleasant acid flavour, which is from chemical investigations ascertained to be oxalic acid, in a state, according to Thomson, of binoxalate of potash, and it is from the circumstance of this acid being found in the leaves that it bears the name. Twenty pounds of the leaves yield about six pounds of juice, which properly evaporated, &c., gives two ounces and half of impure crystalizable salt, which, when purified, forms flat semi-transparent crystals, having an intensely sour taste and active poisonous properties, which, when taken internally in the dose of half an ounce, prove rapidly fatal; and even in the dose of half a drachm they have been known to produce death after a few days. Oxalic acid of the shops is not now prepared from the juice of vegetables, since Scheele has discovered a method of procuring it by acting upon sugar with nitric acid, and producing the salt by this means more readily, and far more economically. Oxalic acid, when mixed with cream of tartar, was sold under the name of salts of lemon, and is useful in removing iron moulds, ink spots, and stains from linen, as well as various other domestic purposes; but since the real salts of lemon, citric acid, is become so much cheaper, and at the same time better, it has supplied its place.

The leaves of the *Wood-sorrel*, notwithstanding the poisonous properties which they contain, are used in different parts of the Continent as an ingredient in the spring salads, and form a delicate and very

agreeable addition. It has been esteemed medicinally as an antiscorbutic diuretic and refrigerent, and affords a pleasant beverage to the feverish patient, when either the bruised leaves or juice is boiled with milk, and the curd separated from the whey, it is cooling and refreshing, and the pleasant acid allays the thirst. The leaves were also formerly made into a confection, called *Conserva Luzulæ*, and used for the same medicinal purposes.

2. *O. corniculata*, Linn. (Fig. 750.) Yellow procumbent Wood-sorrel. Stem branched; branches procumbent at the base; leaves ternate; leaflets obcordate; stipules oblong, attached to the petiole; peduncles with a terminal umbel, of two to five flowers, shorter than the leaves; pedicles reflexed in fruit.

English Botany, t. 1726.—English Flora, vol. ii. p. 324.—Hooker, British Flora, vol. i. p. 214.—Lindley, Synopsis, p. 59.

Root of branched spreading fibres. Stem branched from the base downy, round, striated, leafy, the lower branches procumbent and rooting from the joints, mostly of a pinkish colour. Leaves alternate, or opposite, on long slender footstalks, downy, with a pair of oblong membranous stipules, attached to the base, leaflets three, terminal, nearly sessile, inversely heart-shaped, somewhat downy, paler beneath. Flowers rather small, yellow, from two to five, on short pedicles, terminating the slender peduncles, which are mostly shorter than the leaves. Bractea small, lanceolate. Calyx of five lanceolate segments. Petals small, yellow, united at the base into a short tube. Stamens with short filaments, united at the base. Capsule rather large, reflexed on the pedicle, angular, with a pyramidal point. Seeds numerous, invested in a fleshy striated arillus.

Habitat.—Shady places in the South of England, Sussex, Devonshire. In Scotland, near Stirling and Glasgow; but it is a doubtful native.

Annual; flowering during the summer months.

This species is nearly allied to *O. stricta*, Linn. a native of North America, from which, however, it is readily distinguished from our plant by the want of stipules to the leaves.

The leaves, though acid, are much less so than those of the last species. It is a very common plant in many parts of the Continent, and is used for the same purposes as the Wood-sorrel.

The genus *Oxalis* is very extensive, many of the species are very pretty and ornamental, adding greatly to the beauty of our green-houses; many afford an excellent vegetable in their leaves, and others are cultivated for the esculent tubers formed upon the roots.

GENUS XXI. SED'UM.—LINN. *Orpine and Stonecrop.*

Nat. Ord. CRASSU'LACEÆ. DE CAND.

GEN. CHAR. *Calyx* of five pieces, often united at the base. *Petals* five, spreading. *Stamens* ten. *Ovaries* five, each with a nectariferous scale at the base.—Name from *Sedere, to sit*; from many of them growing upon the bare rock, and looking as if sitting upon it.

* *Stem erect, without procumbent branches.*

a. Leaves flat.

1. *S. Tele'phium, Linn.* (Fig. 751.) *Orpine or Live-long.* Stem erect; leaves ovate oblong, unequally and obtusely serrated, rounded at the base, sessile; corymbs terminal, dense, leafy.

English Botany, t. 1319.—English Flora, vol. ii. p. 316.—Hooker, British Flora, vol. i. p. 212.—Lindley, Synopsis, p. 64.

β. *Fabaria.* Leaves oblong, lanceolate, dentato-serrated, wedge-shaped at the base, the lower ones petiolated.

S. Fabaria. Koch. Flora Germanica et Helvetica, p. 258.—*S. Telephium.*—β. *purpureum, Linn.*

Root of several fleshy tapering long branches. The whole plant quite smooth. *Stem* erect, simple, rarely branched, round, from one to two feet high, spotted with numerous purple spots, leafy. *Leaves* alternate, opposite, sometimes three in a whorl, and often on the lower part of the stem scattered, ovate oblong, or ovate lanceolate, sessile, fleshy, obtusely serrated or dentato-serrated, rounded or wedge-shaped at the base, paler on the under side, and with a broad mid rib. *Inflorescence* terminal and lateral, dense corymbose clusters, with a few leaves intermixed with them. *Flowers* crimson, sometimes white. *Calyx* small. *Petals* lanceolate, spreading, with a somewhat canalculated point. *Stamens* on awl-shaped *filaments*, nearly as long as the petals. *Anthers* roundish, heart-shaped, of two cells.

Habitat.—Banks, hedges, and waste shady places; frequent.

Perennial; flowering in July and August.

b. Leaves rounded.

2. *S. villo'sum, Linn.* (Fig. 752.) *Hairy Stonecrop.* Stem erect; leaves scattered, sessile, linear, oblong, obtuse, rounded at the back, flattened above, glanduloso-pubescent, as well as the terminal sub-racemose panicle; petals ovate, acute, twice as long as the calyx.

English Botany, t. 394.—English Flora, vol. ii. p. 319.—Hooker, British Flora, vol. i. p. 212.—Lindley, Synopsis, p. 65.

Root small branched fibres. *Stem* erect, round, smooth, spotted with small red spots, from three to six inches high, simple or branched, above viscid, with soft glandular pubescence. *Leaves* numerous, scat-

tered, erect, sessile, linear oblong, obtuse, half an inch long, or shorter, rounded at the back, flattened above, fleshy, green or purplish, and more or less clothed with glandular pubescence, especially on the upper part of the stem, the lower ones often quite smooth. *Inflorescence* terminal sub-racemose panicles. *Flowers* on slender pedicles, and as well as the ovate acute segments of the calyx clothed with glandular pubescence. *Petals* ovate, acute, about as long again as the calyx, pale pink, or rose colour, with purple veins. *Stamens* on slender *filaments*, shorter than the petals. *Anthers* roundish, heart-shaped, of two cells. *Styles* with obtuse stigmas, forming a persistent point to the somewhat downy *capsules*, purplish.

Habitat.—Wet and stony places, especially on the side of rills in the North of England and Scotland; most abundant in the sub-alpine districts.

Perennial; flowering in June and July.

**** Stem with procumbent rooting branches.**

a. Leaves rounded. Flowers white or pinkish.

3. *S. dasyphyllum*, Linn. (Fig. 753.) *Thick-leaved Stonecrop*. Stem with procumbent rooting branches; barren branches densely leafy; leaves short, roundish, ovate, fleshy, sessile, mostly opposite; panicle glanduloso-pubescent; petals ovate, acute, twice as long as the obtuse calyx segments.

English Botany, t. 656.—English Flora, vol. ii. p. 316.—Hooker, British Flora, vol. i. p. 212.—Lindley, Synopsis, p. 64.

Root small, fibrous. *Stem* round, slender, weak, branched and leafy, the lower branches procumbent and rooting, the barren ones densely leafy, crowded in a rosaceous manner at the extremity. *Leaves* fleshy, pale green and glaucous, like the stems, ovato-globose, sessile, opposite below, mostly alternate on the flowering stems, often of a reddish tinge, and dotted over. *Inflorescence* paniculated with slender glandulo-pubescent branches. *Calyx* of short ovate obtuse segments. *Petals* white, or pale rose colour, ovate, acute, twice as long as the calyx, or longer, with a dark coloured mid-rib. *Stamens* with slender *filaments*, nearly as long as the petals. *Anthers* roundish, heart-shaped, pink. *Styles* with small downy *stigmas*. *Capsules* pointed with the base of the styles, smooth.

Habitat.—Old walls and rocks in various parts of England. Conway, Wales.—Mr. W. Wilson. Collington Woods, Edinburgh, Scotland. Cork, Ireland.—Mr. Drummond.

Perennial; flowering in June.

The calyx segments, petals, and pistils, vary in number from five to eight, and the stamens double these numbers; but otherwise it is constant to the above characters.

4. *S. Anglicum*, Huds. (Fig. 754.) *White English Stonecrop*. Stem with procumbent rooting branches; barren branches densely



755

Sedum album.



756

Sedum acre.



757

Sedum sexangulare.



758

Sedum reflexum.



759

Sedum glaucum.



760

Sedum rupestre.

leafy; leaves fleshy, alternate, ovate, gibbous at the base; cyme smooth, few flowered; petals with a tapering point, as long again as the ovate calyx segments.

English Botany, t. 171.—English Flora, vol. ii. p. 317.—Hooker, British Flora, vol. i. p. 212.—Lindley, Synopsis, p. 64.

Root small, fibrous. *Stem* round, smooth, slender, pale and glaucous, simple, erect, but mostly much branched from the base, the branches spreading, procumbent and rooting, the barren branches densely crowded with alternate leaves, especially towards the ends, into a club-shape, two, three, or rarely four inches high. *Leaves* crowded, alternate, ovate, obtuse, sessile, and spurred at the base, fleshy, smooth, of a glaucous green, but sometimes like the branches of a reddish colour. *Inflorescence* cymose, smooth, of two spreading branches, with a solitary flower from the axis. *Flowers* few, nearly sessile. *Calyx* of five oblong obtuse or acutely pointed segments. *Petals* five, lanceolate, with a narrow tapering point, white, or spotted with red, with a purplish mid-rib, and mostly two lateral ones. *Stamens* on slender *filaments*, a little shorter than the petals. *Anthers* roundish, kidney-shaped, purple, of two cells. *Styles* with small *stigmas*, downy. *Capsules* smooth.

Habitat.—Dry sandy and rocky places, especially near the sea; common in North Wales, most abundant in Scotland and Ireland.

Annual; flowering in June and July.

5. *S. al'bum*, Linn. (Fig. 755.) *White Stonecrop*. *Stem* erect, with procumbent rooting branches; leaves scattered, linear-oblong, sub-cylindrical, obtuse, spreading; panicle smooth, sub-cymose, much branched; petals lanceolate, three times longer than the obtuse calyx segments.

English Botany, t. 1578.—English Flora, vol. ii. p. 320.—Hooker, British Flora, vol. i. p. 212.—Lindley, Synopsis, p. 64.

Root long, with slender branched fibres. *Stem* erect, from four to six inches high, roundish, smooth, mostly of a purplish colour below, with prostrate rooting branches. *Leaves* smooth, of a glaucous green, rarely of a reddish colour, scattered, spreading, linear oblong, obtuse, cylindrical, somewhat flattened on the upper side, sessile, from half to an inch long. *Inflorescence* a smooth terminal much branched sub-cymose panicle, of numerous crowded white or pale rose coloured *flowers*, each flower on a short footstalk, *Calyx* of five ovate obtuse smooth segments. *Petals* thrice as long as the calyx, lanceolate, with an acute or obtuse point, white or pale rose colour, with a slender mid-rib. *Stamens* about as long as the petals, with slender *filaments*, and small roundish kidney-shaped *anthers*, of a dark purplish colour. *Styles* with small obtuse downy *stigmas*. *Capsule* smooth, membranous.

Habitat.—Rocks, old walls, and roofs of houses; rare. Kentish Town and Bromley, Middlesex; about Great Malvern, Worcestershire,

Suffolk, Peterborough, Wich Cliffs, Somerset.—*Mr. Christy*. Forfar and Glamis, Scotland.—*Mr. G. Don*.

Perennial; flowering in July.

The Stonecrops of this section are extremely pretty ornamental plants, decorating rocks, old walls, and ruins, with their numerous star-like flowers, flourishing and adding beauty to those situations where either from the sterility of the soil or the nakedness of the position, vegetables are liable to great vicissitudes as to the supply of moisture which they may obtain; but these little plants are provided by the foreknowledge of Him who spake, "and it was so," with the means of fulfilling their appointed functions under all the contingencies to which they may be exposed.

b. Leaves rounded. Flowers yellow.

6. *S. a'cre*, Linn. (Fig. 756.) *Biting Stonecrop*, or *Wall Pepper*. Stem procumbent at the base and rooting; leaves alternate, fleshy, ovate, acute at the back, sessile, spurred at the base; cymes smooth, leafy; petals lanceolate, twice as long as the calyx segments.

English Botany, t. 839.—English Flora, vol. ii. p. 318.—Hooker, British Flora, vol. i. p. 213.—Lindley, Synopsis, p. 65.

Root of branched fibres. Stem roundish, smooth, succulent, tender, much branched in a tufted manner, procumbent and rooting at the base, from two to three inches high, leafy, the barren branches densely crowded with imbricated leaves, the stems alternate and distant. Leaves a cheerful green, fleshy, very succulent, ovate, obtuse, acutely convex at the back, flattened above, and spurred at the base. Inflorescence a two or three branched cymose panicle, of more or less numerous yellow flowers, on short stalks, accompanied with a bractea at the base. Calyx of five lanceolate segments. Petals lanceolate, with a tapering point, twice as long as the calyx. Stamens on slender filaments, shorter than the petals. Anthers oblong, notched, orange colour. Style with small obtuse stigma. Capsule pale, thin, membranous.

Habitat.—Old walls, ruins, roofs, and dry places; frequent.

Perennial; flowering in June and July.

This plant in a recent state is extremely pungent and bitter; hence it has obtained the name of *Wall Pepper*, and when taken in large doses acts powerfully both as an emetic and cathartic, and when bruised and applied to the skin, it causes inflammation, blisters, and frequently erosions. Bruised and boiled in milk, it has been thought of great use in scorbutic diseases; and cancerous affections are said to have been cured by its use. It forms an useful stimulating poultice to indolent ulcers, and was esteemed in the cure of intermittent fevers. It is an extremely pretty cheerful looking plant, growing in dense tufts on barren rocks or ruined buildings, walls, &c., and not less so on artificial rock work, dry banks, &c.

7. *S. sexangula're*, Linn. (Fig. 757.) *Tasteless yellow Stonecrop*. Stem procumbent at the base, and rooting; leaves round, linear, obtuse, spurred at the base, sessile; cymes smooth, leafy; petals lanceolate, acute, twice as long as the calyx segments.

English Botany, t. 1946.—English Flora, vol. ii. p. 318.—Hooker, British Flora, vol. i. p. 213.—Lindley, Synopsis, p. 65.

Root of slender branched fibres. *Stem* roundish, smooth, succulent, branched, somewhat tufted, procumbent and rooting at the base, from two to three inches high. *Leaves* of a cheerful grass green, round, linear, with an obtuse point, sessile, with a short obtuse spur at the base, those of the stem in alternate whorls of three or four together on the branches, crowded in a somewhat imbricated manner. *Inflorescence* a terminal *cyme*, mostly of three spreading branches, with a solitary flower in the axis of divarication. *Flowers* mostly less numerous than in *S. acre*, nearly sessile. *Calyx* of oblong obtuse segments, half as long as the lanceolate acute *petals*, of a bright palish yellow colour. *Stamens* with slender awl-shaped *filaments*, shorter than the petals. *Anthers* small, of two cells. *Styles* with small obtuse *stigmas*. *Capsules* pale, thin, membranous.

Habitat.—Old walls in the eastern parts of England; rare. Isle of Sheppey; Greenwich Park wall; in Cambridgeshire; and the walls of Old Sarum, Wiltshire.

Perennial; flowering in July.

This species has a great resemblance to the former, from which, however, it is readily distinguished by its linear obtuse leaves, its less spreading habit; and the bitterness of the whole plant is, though austere, far less pungent and acrid than those of *S. acre*. The disposition of the leaves upon the stems and branches is not materially different from those of *S. acre*. Their insertion in opposite whorls of three or four, gives it the sexangular appearance, from which circumstance Linnæus gave it the name, by which it is distinguished; but this disposition of them is often even more remarkable in *S. acre* than in this species.

Though a rare plant in England it is common in various parts of the Continent, and in many parts of Italy much more frequent, especially on old walls, than *S. acre*.

8. *S. reflex'um*, Linn. (Fig. 758.) *Crooked Yellow Stonecrop*. Leaves linear, awl-shaped, acute, with a bristly point, sessile, with a short spur at the base, fleshy, scattered, the lower ones reflexed; cyme smooth; calyx segments acute, much shorter than the lanceolate petals.

English Botany, t. 695.—English Flora, vol. ii. p. 320.—Hooker, British Flora, vol. i. p. 213.—Lindley, Synopsis, p. 65.

Root of branched spreading fibres. *Stem* round, smooth, from six to twelve inches high, procumbent at the base, and more or less branched and spreading, flowering stems erect, scattered over with

leaves, the barren branches spreading, and much crowded with imbricated leaves. *Leaves* linear, awl-shaped, thick, tapering into a bristle point, and with a short spur at the base, of a dull green colour, somewhat glaucous, frequently becoming of a brownish pink, especially the lower ones, and spreading or reflexed. *Inflorescence* a terminal cyme of several branches, smooth, and bearing numerous yellow flowers, the branches as the flowers become matured, frequently recurved. *Calyx* of five ovate acute segments, half as long as the lanceolate spreading *petals*. *Stamens* shorter than the petals, and varying in number from ten to twelve, and the petals and pistils are frequently six, instead of the normal number five.

Habitat.—Old walls, roofs of houses, and dry banks; frequent. Perennial; flowering in July.

9. *S. glaucum*, *Donn.* (Fig. 759.) *Glaucous Yellow Stonecrop*. “Leaves glaucous, awl-shaped, scattered, spurred at the base, those of the branches thread-shaped; flowers cymose; segments of the calyx lanceolate.”—*Smith*.

English Botany, t. 2477.—English Flora, vol. ii. p. 321.—Hooker, British Flora, vol. i. p. 213.—*β. glaucum*, *Koch.*—*S. albescens*, *Haworth.*—*Lindley*, Synopsis, p. 65.

This, according to *Smith*, “differs from the last in being of a more glaucous hue, with much more slender *leaves*, especially on the radical shoots. The branches of the cyme are more uniformly spreading, and the segments of the calyx narrower, and more pointed.”

Habitat.—Rough hills near Mildon Hall, Suffolk.—*Mr. F. Eagle*. Wall at Sunday's Well, near Glaskeen, County of Cork.—*Mr. J. Drummond*.

Perennial; flowering in July and August.

This, which has been distinguished as a species, we are much disposed to consider only a variety of the former, depending upon some local circumstance in the situation of its growth. It is variable in the number of the parts of the flower, from five to seven in the petals and pistils, and double that number of stamens. We have observed it much more frequent on old walls, rocks, banks, and dry places, in many parts of the Apennines of Italy, than with us; but have not been able to satisfy ourselves of its right to the distinction of a species, as we observe every shade of difference between the extremes of the two not only in form but colour, which differences seem to depend upon the more or less sunny situation or dampness of the soil in which they have grown.

10. *S. rupestre*, *Linn.* (Fig. 760.) *St. Vincent's Rock Stonecrop*. Leaves linear, awl-shaped, acute, fleshy, with a bristle point, spurred at the base, scattered on the stem, densely crowded on the branches; cymes smooth; calyx segments roundish, obtuse, much shorter than the lanceolate petals.



761 *Sedum Forsterianum.*



762 *Umbilicus pendulinus.*



763 *Umbilicus pendulinus beta horizontalis.*



764 *Umbilicus erectus.*



765 *Agrostemma githago.*



766 *Lychnis flos-cuculi.*

English Botany, t. 170.—English Flora, vol. ii. p. 322.—Hooker, British Flora, vol. i. p. 213.—Lindley, Synopsis, p. 65.—*S. elegans*, Lejeune.

This by De Candolle is considered a variety of *S. reflexum*, from which it does not appear to materially differ, with the exception of the cymes being larger, more branched, and the flowers more numerous and crowded, and in the segments of the calyx being roundish obtuse.

Habitat.—St. Vincent's Rock, Bristol; Cheddar Rocks, Somersetshire; and old walls about Darlington, Yorkshire.—*Mr. E. Robson*.

Perennial; flowering in July.

11. *S. Forsterianum*, Sm. (Fig. 761.) *Welsh Rock Stonecrop*. "Leaves spurred at the base, those of the branches semi-cylindrical, bluntish, pointed, spreading, in many rows; flowers cymose; segments of the calyx elliptical, obtuse."

English Botany, t. 1802.—English Flora, vol. ii. p. 322.—Hooker, British Flora, vol. i. p. 213.—Lindley, Synopsis, p. 65.

"Very distinct from *S. rupestre*, with which it has been confounded, in the bright green colour of its foliage; but the short rosaceous tufts of spreading leaves, which are blunt, with a small bristly point, more essentially distinguish it. The flowers grow in a true cyme, all the primary stalks springing from one point. The calyx in this and the last species has more shallow, short, elliptical, and obtuse segments, than either of the two preceding."

Habitat.—Rocks in Wales, at the fall of the Rhyddell, Cardiganshire.—*Mr. E. Forster*. At Hisvæ, valley of Nant-phrancon.—*Dr. Richardson*. Little Ormeshead.—*Mr. W. Wilson*.

Perennial; flowering in June and July.

This species we only know from cultivated plants and dried specimens, in both of which conditions it is difficult to determine upon the distinguishing characters of so nearly allied species. We have, therefore, given the specific character and description of Smith; and it may be further remarked, that Mr. W. Wilson thinks that "perhaps the compact hemispherical or round-topped cyme is the best mark by which to distinguish this from *S. reflexum*."

Many of the species of yellow Stonecrops of this section, the student will observe, are very difficult to distinguish from each other, as they, under various circumstances, assume such different appearances, from the influence which peculiarities in the soil and a shady or exposed situation has upon them; for they flourish well either upon the dripping rock, or within the spray of the mountain stream, beneath the shade of trees, or exposed to the vicissitudes of every change on the tops of walls, ruined buildings, crags, &c.; in accommodating itself to these varieties of existence it is not surprising the plant should assume different appearances. While the student is engaged in inquiries about the specific characters, the physiological structure of the plants will doubtless add much of interest to his investigations, for curious indeed

must be the formation of the plants, which flourishes so well and perfectly under the greatest extremes of moisture from a dripping rock to the arid and exposed situation of old wall tops, where its supply of moisture is so precarious, and oft for months without any refreshment from rain: from these circumstances the student will be led to investigate the causes why the sedums have the power to so freely absorb nutriment, and so tenaciously retain it. We know that it is not only by the extremity of the roots that plants absorb fluids, but that they are furnished with stomata, or mouths, in various parts of the plant, and in greater or less abundance, and that by these they not only absorb but expel fluid and ærial substances; but these stomata in the sedums must be of a very different construction, or extremely scanty in number or size, compared with many other plants, for they exist and flourish through the drought of summer, while numberless plants in similar situations have long withered, dried up, and passed away.

GENUS XXII. UMBILICUS.—DE CAND. *Navelwort, or Pennywort.*

Nat. Ord. CRASSULACEÆ. DE CAND.

GEN. CHAR. *Calyx* of five pieces, united at the base. *Corolla* monopetalous, tubular, five-cleft. *Stamens* ten, inserted into the corolla. *Ovaries* five, each with a nectariferous scale at the base. *Styles* subulate,—Name *umbilicus*; the navel.

1. *U. pendulifolius*, De Cand. (Fig. 762.) *Pendulous Navelwort, or Pennywort.* Leaves peltate, depressed in the middle; roundish crenate flowers; racemose numerous, pendulous; bractæ entire.

Cotyledon umbilicus, Huds.—De Cand. Prod. 3. p. 400.—Lindley, Synopsis, p. 64.—English Botany, t. 325.—English Flora, vol. ii. p. 314.—Hooker, British Flora, vol. i. p. 211.

β. *horizontalis*. (Fig. 763.) Flowers erect, at length horizontal.

U. horizontalis.—De Cand. Prod. 3. p. 400.—*Cotyledon horizontalis*.—Guss. Prod. Fl. Sic. 1. p. 517.—Ten. Fl. Neap. App. 5. p. 13.—Flora Roman Addend. p. 65.

Root somewhat tuberous, with long fibres. The whole plant smooth and succulent, from six to about twelve inches high. *Stem* erect, roundish, simple, or sometimes branched, leafy below, and of a purplish colour. *Leaves* on the lower part of the stem, on long footstalks, quite smooth and fleshy, orbicular, depressed in the centre, and attached to the footstalk, the margins unequally notched or lobed, or crenate, the upper ones more deeply cut, becoming plane, not peltate. *Inflorescence* a long terminal simple raceme, sometimes branched. *Flowers* numerous, each elevated on a *pedicel*, arising from the axis of a simple linear *bractea*, nearly as long as itself, at first erect, becoming

pendulous, or, as in the variety *β. horizontalis*, patens. *Calyx* of five lanceolate segments, united at the base. *Corolla* pale greenish yellow, bell-shaped, with a short limb, of five lanceolate recurved segments. *Stamens* ten, inserted into the corolla, five longer than the others, with slender awl-shaped *filaments*, and ovate anthers, of two cells. *Ovaries* five, linear, terminating in a short *style*, with an obtuse *stigma*, and accompanied at the base with an oblong nectariferous gland. *Capsules* five, linear, oblong, single celled, bursting on the inner angle, and containing numerous ovate pointed *seeds*.

Habitat.—Old walls, rocks, &c., in dry places; not uncommon, especially in sub-alpine districts.

Perennial; flowering from June to August.

The *C. horizontalis* of Guss is by no means an uncommon plant with us; but we are unable to fix upon any character by which to distinguish it from *U. pendulinus*, its only peculiarity being that of the flowers standing out horizontally instead of being pendulous, but this is by no means a constant character, since it may not unfrequently be observed on the same plant that some of the flowers are pendulous, and others horizontal, and in different plants they may be observed in every state between pendulous and horizontal. We have, therefore, thought it only a variety, if, indeed, it is deserving even that distinction from the common state of the plant.

2. *U. erectus*, De Cand. (Fig. 764.) erect Navelwort, or yellow Pennywort. Lower leaves roundish, somewhat peltate, dentato-crenate; raceme with erect flowers; bractæ sub-dentate.

De Cand. Prod. 3. p. 400.—Lindley, Synopsis, p. 64.—*Cotyledon lutea*, Huds.—English Botany, t. 1522.—English Flora, vol. ii. p. 315.—Hooker, British Flora, vol. i. p. 211.

Root fleshy, creeping. The whole plant smooth and succulent, from twelve to fourteen inches high. *Stem* roundish, smooth, pinkish, leafy, the lower *leaves*, only slightly peltate, the upper somewhat kidney-shaped, thickish, fleshy, smooth, with a stout mid-rib, and dentato-crenate margins. *Inflorescence* a terminal densely crowded raceme, of numerous erect yellow *flowers*, from the axis of erect more or less toothed or crenated *bractæ*, sometimes entire. *Calyx* of five narrow lanceolate segments, united at the base. *Corolla* yellow, bell-shaped, with a spreading limb of five lanceolate segments. *Stamens* with awl-shaped slender *filaments*, inserted into the corolla, five longer than the others, bearing roundish *anthers*, of two cells. *Ovaries* five, linear, ovate, united at the base, and at the base on the outer side bearing a semi-lunate nectariferous gland.

Habitat.—Walls and rocks; very rare. West Riding of Yorkshire.—*Mr. Tofield*. And Hudson understood that it grew in Somersetshire.

Perennial; flowering in July.

This is a very doubtful native plant, and perhaps ought not to be

admitted into our Flora. It is found in various parts of Portugal, but even there it is by no means common.

GENUS XXIII. AGROSTEM'MA.—LINN. *Cockle*.

Nat. Ord. CARYOPHYLLÆÆ. JUSS.

GEN. CHAR. *Calyx* of one piece, tubular, coriaceous, with five foliaceous segments. *Petals* five clawed. *Capsule* of one cell, opening with five teeth at the apex.—Name from *αγρου στικμα*, *Crown of the Field*; so called from the great beauty of the flowers growing amongst the corn.

1. *A. Githa'go*, Linn. (Fig. 765.) *Corn Cockle*. *Calyx* with leafy segments, longer than the corolla; petals notched, without a crown.

English Botany, t. 741.—English Flora, vol. ii. p. 325.—Hooker, British Flora, vol. i. p. 214.—Lindley, Synopsis, p. 47.—*Lychnis Githago*, De Cand.

Root tapering. The whole plant clothed with stout hairs, pointed upwards. *Stem* erect, branched, roundish, from three to four feet high. *Leaves* linear, lanceolate, opposite, sessile, and united at the base, palish green, with a prominent mid-rib on the under side, and two slender lateral veins. *Flowers* solitary, terminating the branches, large, a beautiful purple colour, with radiant darker dotted lines. *Calyx* tubular, with stout prominent ribs, the limb of five mostly equal linear lanceolate leafy segments, hoary, with erect pale hairs. *Corolla* of five heart-shaped petals, tapering into a long slender claw, and without a crown at the base, shorter than the calyx segments. *Stamens* with slender awl-shaped *filaments*, five shorter than the others. *Anthers* oblong, purple, of two cells, deeply divided at the base. *Styles* long, slender, hairy. *Capsule* enveloped in the persistent calyx, oblong, of one cell, with five valves. *Seeds* numerous, rather large, rough, and attached to the central receptacle.

Habitat.—Corn fields, frequent; often a troublesome, though beautiful weed.

Annual; flowering in June and July.

This is one of our most beautiful wild flowers, growing in many parts of the country in too great abundance, especially in corn fields, and more particularly amongst wheat. It is nearly allied to the following genus *Lychnis*, from which it is principally distinguished by its stout ribbed calyx, with its long linear lanceolate leafy segments, and by the petals being undivided, and not crowned at the throat with scales.

GENUS XXIV. Lych'nis.—LINN. *Catchfly*.

Nat. Ord. CARYOPHYLL'LEÆ. JUSS.

GEN. CHAR. *Calyx* of one piece, tubular, five toothed. *Petals* five, with six at the throat. *Capsule* of one, or partly five celled, opening with five or ten teeth at the apex.—Name from *λυχνος*, a lamp; so called, it is said, in allusion to the wick of some of the species having been used as wicks to lamps.

1. *L. Flos-Cuculi*, Linn. (Fig. 766.) *Meadow Lychnis*, *Ragged Robin*. Flowers in a loose panicle; petals cut into four linear spreading segments, rough; leaves linear, lanceolate; capsule roundish, of one cell.

English Botany, t. 573.—English Flora, vol. ii. p. 326.—Hooker, British Flora, vol. i. p. 214.—Lindley, Synopsis, p. 47.

Root tapering, and with branched fibres. *Stem* erect, simple, from one to two feet high, square, rough, with short deflexed hairs, especially beneath the joints, and clammy.

Leaves opposite, united at the base, those of the stem linear lanceolate erect, the radical ones, and those of the branches tapering into a rather long slender footstalk, and mostly fringed with pale soft hairs. *Inflorescence* a terminal forked panicle, with a solitary flower from the axis of each division, and accompanied with a pair of linear tapering sub-membranous *bracteas*. *Flowers* inodorous, a delicate rose colour, rarely white. *Calyx* campanulate, ten ribbed, sub-membranous, pinkish, with five lanceolate teeth. *Corolla* campanulate, of five petals, the limb of four deep cut linear spreading segments, the base tapering into a claw, as long as the calyx, and crowned by two linear teeth. *Stamens* ten, on slender awl-shaped *filaments*, five as long as the calyx, and five shorter, attached to the base of the claws. *Styles* five, sometimes three or four, thread-shaped, as long as the stamens, with downy stigmas. *Capsule* as long as the calyx, roundish ovate, of one cell, opening at the apex with five valves. *Seeds* numerous, attached to a central receptacle by a rather long cord (funis).

Habitat.—Meadows, pastures, &c.; frequent.

Perennial; flowering in June and July.

This is a gay ornamental plant, becoming by cultivation double, and forms a pretty border flower; but it requires a good soil and moist situation to retain this peculiarity, otherwise the stamens and pistils return to their normal state.

2. *L. Viscaria*, Linn. (Fig. 767.) *Red viscid Catchfly*, or *rock Lychnis*. Flowers in a terminal whorled panicle; petals slightly notched; stem smooth, viscid beneath the joints; leaves lanceolate, ciliated at the base.

English Botany, t. 788.—English Flora, vol. ii. p. 327.—Hooker, British Flora, vol. i. p. 214.—Lindley, Synopsis, p. 47.

Root tapering. *Stem* erect, about twelve inches high, simple, leafy, somewhat angular, viscid beneath the joints, smooth. *Leaves* opposite, and united at the base, smooth, except the margins towards the base, ciliated with soft woolly hairs, linear lanceolate, with an acuminate point, paler on the under side, with a prominent mid-rib, the radical ones narrower, longer, and somewhat tufted. *Inflorescence* a terminal panicle of numerous whorled flowers. *Flowers* pink or white, each on a short footstalk, with a pair of thin membranous lanceolate acuminate bracteas. *Calyx* tubular, smooth, ten ribbed, five toothed. *Corolla* of five petals, the limb spreading, slightly notched, or entire, tapering into a slender claw, which is enlarged at the top, and crowned at the throat with a pair of lanceolate scales. *Stamens* on slender filaments, with oblong anthers. *Styles* slender, with downy stigmas. *Capsule* ovate oblong, on a rather long footstalk, of one cell, opening with five valves. *Seeds* numerous.

Habitat.—Dry alpine rocks, Scotland; about Edinburgh, Newbury, Fifeshire, near Airly Castle, Bridge of Earne, and Den of Balthayock, Perthshire; and on Craig Wreidhin or Breiddin, Montgomeryshire.

Perennial; flowering in May and June.

Both the pink coloured and white flowered varieties of this species are frequently cultivated in gardens, and form very pretty border flowers. They are very hardy, and are easily propagated by cuttings, and the *L. chalconica*, or Scarlet Lychnis, is an old and favourite border flower, a native of Russia. It is readily cultivated and easily propagated, both by seed and cuttings. The flowers frequently become double, and sometimes white varieties are obtained.

3. *L. alpi'na*, Linn. (Fig. 768.) *Red Alpine Campion*. Flowers in a close terminal panicle; petals bifid, smooth; leaves lanceolate; capsule roundish, ovate, of one cell.

English Botany, t. 2254.—English Flora, vol. ii. p. 328.—Hooker, British Flora, vol. i. p. 215.—Lindley, Synopsis, p. 47.

Root fibrous. The whole plant smooth, and free from viscosity. *Stem* erect, from three to six inches high, simple. *Leaves* of the stem lanceolate, sessile, united at the base, single ribbed, the radical ones narrower, crowded into thick tufts. *Inflorescence* a terminal crowded sub-corymbose panicle. *Flowers* small, bright rose colour. *Calyx* broadish, bell-shaped, quite smooth, and with indistinct ribs. *Corolla* of five petals, the limb spreading, deeply cleft, tapering into a slender claw, crowned at the throat with two scale-like protuberances. *Stamens* with slender awl-shaped filaments, five longer than the others. *Anthers* oblong, of two cells. *Capsules* roundish ovate, on a short stalk, when young divided into five cells, but in maturity of one cell, opening with five acute recurved valves, cleft to near the middle of the capsules. *Seeds* numerous, dark brown, beautifully marked with elevated points.



767

Lychnis viscaria.



768 *Lychnis*

alpina.



769

Lychnis dioica



770

Lychnis v. rubra.



771

Asarum europaeum.



772

Lythrum salicaria.

Habitat.—Rocks on the summit of the Clove Mountains, Scotland.
 Perennial; flowering in June and July.

This species is readily distinguished from the following, to which it is somewhat allied by its cloven petals, the whole plant being entirely free from pubescence and viscidty, and by its narrower paler green leaves.

4. *L. dioica*, Linn. (Fig. 769.) *White Campion*. Flowers in dichotomous panicles, diœcious; petals white or red, deeply cloven with spreading lobes; capsule opening with five valves; leaves ovate lanceolate, acuminate.

α. *alba*. Flowers white.

β. English Botany, t. 1580.—β. English Flora, vol. ii. p. 328.—

β. Hooker, British Flora, vol. i. p. 215.—Lindley, Synopsis, p. 47.—*L. vespertina*, Sibth.

β. *rubra*. (Fig. 770.) Flowers red.

English Botany, α. t. 1579.—English Flora, vol. ii. p. 329.—α. Hooker, British Flora, vol. i. p. 215.—α. *L. diurna*, Sibth.—*L. sylvestris*, Hopp.—De Cand. Prod. p. 1. p. 386.—Lindley, Synopsis, p. 47.

γ, *rosa*. Flowers pale pink, often with stamens and pistils together.
 English Flora, vol. ii. p. 329.—Hooker, British Flora, vol. i. p. 215.

Root tapering. The whole plant of a dark or paler green, and more or less clothed with soft spreading somewhat viscid hairs. *Stem* erect, round, more or less branched and spreading, from one to two feet high, mostly weak. *Leaves* ovate, acute, the upper narrower, becoming lanceolate, soft, pliant, with a more or less waved margin, the lower ones on footstalks, the upper sessile, opposite, and united at the base. *Inflorescence* a terminal forked spreading panicle, with a solitary flower from the axis of each division. *Flowers* white, red, or pinkish, numerous. *Calyx* tubular, ribbed, the limb of five lanceolate erect teeth. *Corolla* of five petals, with a spreading limb, cleft to the middle with broad or narrower more or less spreading lobes, white, red, or pink, the claw as long as the calyx, crowned at the top with four teeth, the two inner ones acute, the outer obtuse. *Stamens* and *pistils* in separate flowers, sometimes united in the same flower. *Capsule* ovato-conate, on a short stalk, opening at the apex with five acute teeth, which are either erect or spreading, one celled, many seeded.

Habitat.—Banks under hedges, fields and waste places; common.

Perennial; flowering during the summer months.

This is a remarkable species of *Lychnis*, from the circumstance of its flowers being diœcious, and of different colours. In the illustrations of these states we have represented the white flowered variety with pistils only, producing capsules and seed; and in the red a specimen with stamens only, and consequently barren, sometimes, however, flowers are found with both stamens and pistils. The white and red

flowered plants have been by some authors made distinct species, the red flowering plants having the petals with deeper, narrower, and more spreading lobes, and the capsules rounder, with the valves recurved, while the white flowered one has broader less spreading lobes to the petals, ovate conate capsules, and the valves of erect teeth. We do not, however, find this character sufficiently constant, the petals both of the red and white variety vary considerably in width, the shape of the capsule is not constantly the same, and the teeth of the white variety are as frequently reflexed as erect.

Both these varieties are occasionally cultivated in gardens, and frequently become double, and very ornamental; but that the species mentioned above are liable, unless care is taken of them, to return to the single state.

CLASS XI.

DODECAN'DRIA. 12 STAMENS.

ORDER I.

MONOGYN'IA. 1 PISTIL.

GENUS I. A'SARUM.—LINN. *Asarabacca*.

Nat. Ord. ARISTOLOCHI'Æ. JUSS.

GEN. CHAR. *Perianth* single, campanulate, three or four cleft, superior. *Stamens* twelve, placed upon the ovary. *Antlers* about the middle of the *filaments*. *Stigmas* radiant, in six lobes. *Capsules* six celled.—Name from α . *not*, and $\sigma\upsilon\gamma\alpha$, a *bandage*; because it was rejected from amongst other flowers used by the ancients in making garlands.

1. *A. Europæum*, Linn. (Fig. 771.) *European Asarabacca*. Leaves kidney-shaped, obtuse.

English Botany, t. 1083.—English Flora, vol. ii. p. 342.—Hooker, British Flora, vol. i. p. 219.—Lindley, Synopsis, p. 225.

Roots fibrous, long, from creeping underground stems. *Stem* short, round, terminating in a solitary flower from the axis, of a pair of terminal leaves. *Leaves* on long channeled footstalks, roundish, kidney-shaped, obtuse, a deep yellowish green, paler beneath, and reticulated with branched veins, somewhat hairy and ciliated on the margin, the footstalks and stem scattered over with long spreading hairs. *Flower* solitary, drooping on a footstalk, from half an inch to an inch long, of a dark purplish green colour, the *perianth* single, bell-shaped, with a three cleft limb, erect or incurved. *Stamens* with awl-

shaped *filaments*, inserted into the ovarium, shorter than the perianth. *Anthers* of two cells, fixed about the middle of the filaments. *Style* furrowed, with a six cleft radiant *stigma*. *Capsule* of six cells, coriaceous, each cell containing several pale obovate *seeds*.

Habitat.—Woods and shady places in the North of England.

Perennial; flowering in May,

Asarabacca has for some time had the reputation of a useful emetic, possessing also cathartic and diuretic properties; but as a medicine for these purposes it is not now used, but the powdered leaves in the dose of three or four grains snuffed up the nose as an errhine, is said to be useful in the relief of tooth-ache, and some local affections of the eyes, &c., but its use is seldom resorted to.

GENUS II. LYTH'RUM.—LINN. *Purple Loosestrife*.

Nat. Ord. LYTHRA'RIÆ. JUSS.

GEN. CHAR. *Calyx* inferior, tubular, with from eight to twelve teeth, alternately smaller, and erect. *Petals* from four to six, inserted into the tube of the calyx. *Stamens* equal, or double the number of the petals, inserted into the middle or base of the calyx tube. *Capsule* oblong, of two cells, many seeded.—Name from *λυθρον*, *black blood*, or *gore*; in allusion to the colour of the flowers.

1. *L. Salicaria*, Linn. (Fig. 772.) *Spiked Purple Loosestrife*. Leaves lanceolate, cordate at the base, opposite; flowers in leafy whorled spikes.

English Botany, t. 1061.—English Flora, vol. ii. p. 343.—Hooker, British Flora, vol. i. p. 219.—Lindley, Synopsis, p. 72.

β. *canescens*, Koch. Leaves crisped on the margins, and sub-tomentose.

Root woody, with branched fibres. *Stem* from two to four feet high, erect, acutely four angled, sometimes irregularly, six, simple or branched, smooth or rough, with close pubescence. *Leaves* numerous, opposite, sometimes alternate, or three or four in a whorl, sessile, or nearly so, lanceolate, with a cordate base, and from one to three inches long, the margins entire, or more or less waved and curled, darkish green above, paler beneath, and more or less clothed with roughish hairiness. *Inflorescence* a terminal spike, of numerous whorled flowers, arising from the base of roundish ovate acute *bracteas*. *Flowers* numerous, crowded, of a purplish crimson colour. *Calyx* tubular, of twelve ribs, terminating in twelve teeth, the six outer awl-shaped, three times as long as the six inner lanceolate ones, rough, with short hairs. *Petals* oblong, with a tapering base, inserted into the throat of the calyx, the margins waved. *Stamens* twelve, with slender awl-shaped *filaments*, inserted into the base of the calyx, six shorter and six about as long as the corolla. *Anthers* ovate, of two cells. *Styles*

slender, thread-shaped, about as long as the calyx. *Stigma* capitate. *Capsule* small, oblong, of two cells, many seeded.

Habitat.—Ditches, drains, and watery places; frequent.

Perennial; flowering in July and August.

The long numerous flowered spikes of this species are extremely handsome, varying greatly in number and in the colour of the flowers, from crimson to a deep purple. It continues long in perfection, and forms, when cultivated, an extremely beautiful and highly ornamental plant, for the spikes are frequently from twelve to eighteen inches long, and the foliage has a cheerful appearance. It is said to possess astringent and tanning properties, and has been used for the purposes of tanning leather, but its place is now occupied by others of greater power.

2. *L. hyssopifolium*, Sibth. (Fig. 773.) *Hyssop-leaved Purple Loosestrife*. Leaves linear, oblong; flowers axillary, solitary, hexandrous; calyx with a pair of short bracteas.

English Botany, t. 292.—English Flora, vol. ii. p. 344.—Hooker, British Flora, vol. i. p. 219.—Lindley, Synopsis, p. 72.

Root small, tapering. *Stem* from four to eight inches high, simple, or with spreading slender branches from the base, pinkish, angular. *Leaves* numerous, opposite and alternate, sessile, linear oblong, obtuse, with a stout mid-rib, of a glaucous green. *Flowers* solitary, axillary, nearly sessile. *Calyx* with a pair of small bracteas at the base, tubular, the limb of short teeth, the smaller ones spreading. *Corolla* of five ovate small spreading segments, inserted into the throat of the calyx. *Stamens* only six, on short filaments, inserted into the top of the calyx tube. *Anthers* small, of two cells. *Style* short. *Stigmas* obtuse.

Habitat.—Moist and occasionally inundated places in the Eastern Counties of England; not common.

Annual; flowering in August.

This humble and delicate little plant is far more frequent on the Continent than with us, where too it grows to a greater size, and frequently much branched and spreading at the base.

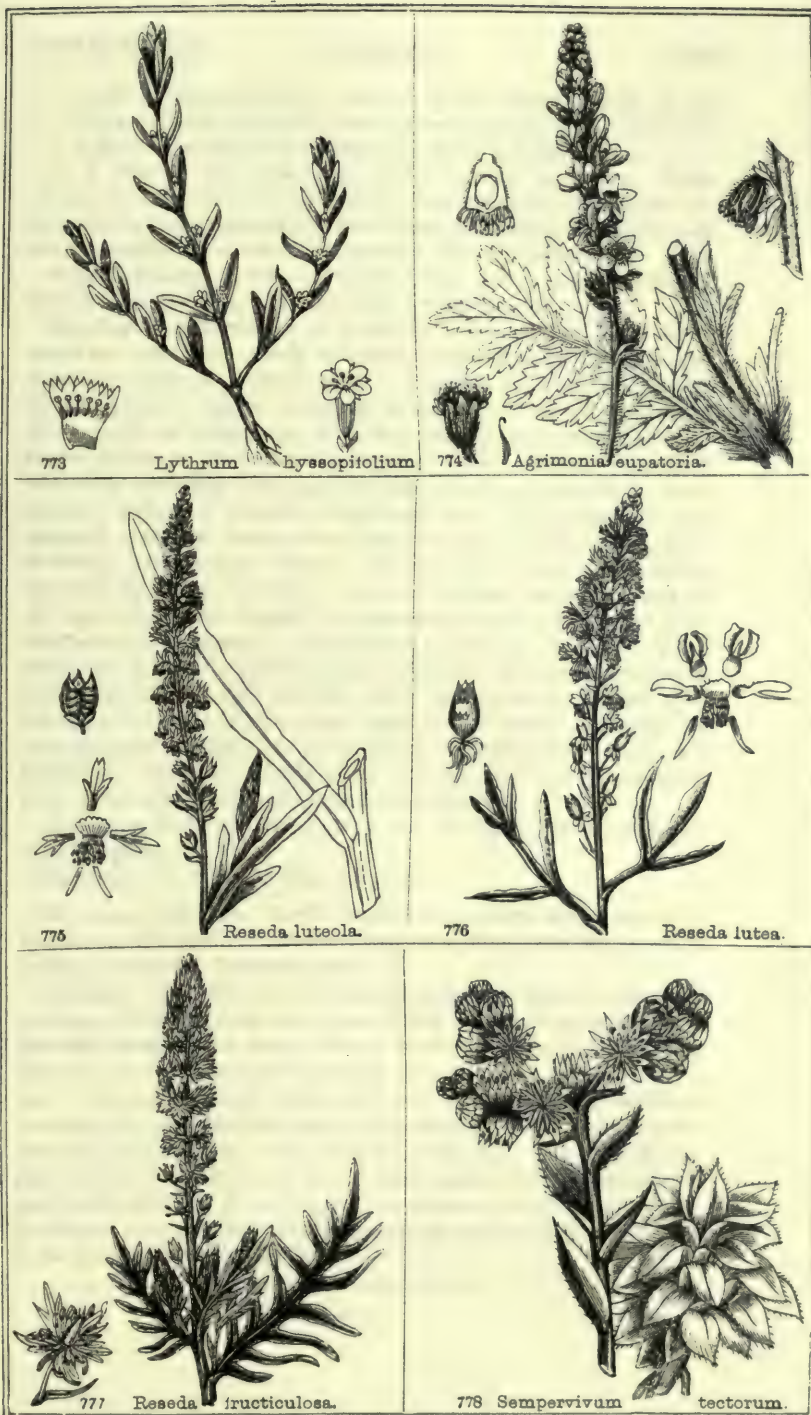
ORDER II.

DIGY'NIA. 2 PISTILS.

GENUS III. AGRIMO'NIA.—LINN. *Agrimony*.

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* turbinate, the limb five cleft, surrounded with rigid hooked bristles. *Petals* five, inserted upon the calyx. *Stamens* seven to twenty, inserted upon the calyx. *Fruit* one or two



small membranous nuts, inclosed in the indurated tube of the calyx.—Name corrupted from *Argemone*, given by the Greeks to a plant supposed to cure cataract in the eye, called *αργημνα*.

1. *A. Eupato'ria*, Linn. (Fig. 774.) *Common Agrimony*. Spike elongated; calyx in fruit, ob-conical, deeply furrowed; leaves of the stem interruptedly pinnate; leaflets oblong, lanceolate, deeply serrated, the intermediate ones small, the terminal one on a footstalk.

English Botany, t. 1335.—English Flora, vol. ii. p. 346.—Hooker, British Flora, vol. i. p. 220.—Lindley, Synopsis, p. 99.

Root tapering, branched, of a reddish yellow colour. *Stem* erect, about two feet high, rarely branched, with alternate distant leaves, roundish, mostly of a reddish colour, or spotted and clothed with long spreading hairs. *Leaves* numerous at the base of the stem, alternate, from four to six inches long, with deep cut *stipules* at the base, interruptedly pinnate, the leaflets dark green, paler beneath, and clothed with long spreading hairs, opposite and alternate, the smaller intermediate leaflets of irregular shapes and size. *Inflorescence* a long terminal spike, of numerous at first crowded flowers, which, after flowering, become more distant. *Flowers* yellow, apparently sessile, but after flowering the fruit is elevated on a short pedicle, having at the base a three cleft *bractea*, and beneath the calyx two smaller three cleft scales, or bracteola. *Calyx* tubular, furrowed, hairy, with a five cleft limb, of short ribbed lanceolate segments, surrounded externally with rough rigid hooked bristles, which become much enlarged after flowering. *Corolla* of five ovate short clawed petals. *Stamens* on short *filaments*, inserted into the throat of the calyx tube. *Styles* two, spreading. *Fruit* two membranous *nuts*, enveloped in the hardened tube of the calyx. *Seed* ovate, pointed, suspended.

Habitat.—Waste and shady places on road sides, borders of fields, &c.; frequent.

Perennial; flowering in June and July.

The genus *Agrimonia*, it will be observed, is nearly allied, especially by the variable number of its stamens, to the class *Icosandria*, in which perhaps it would be better to place it.

Agrimony, from the tonic astringent properties which it possesses, has long obtained a place among the British herbalist's collections, and has been esteemed as a useful remedy in the expulsion of worms from the body; from its pleasant aromatic flavour it has also composed a part of various renowned British herb teas, and was thought useful in the form of a gargle in affections of the throat, and the decoction was reputed a useful drink in the cure of fevers, &c. The juice of the plant before it has flowered dyes woollen goods of a nankeen colour, and if collected after it has flowered it produces a much darker yellow. It has also been used from the astringent properties which it possesses in the process of tanning leather.

ORDER III.

TRIGY'NIA. 3 PISTILS.

GENUS IV. RESE'DA.—ROCKET. *Mignonette*.

Nat. Ord. RESEDA'CEÆ. DE CAND.

GEN. CHAR. *Calyx* persistent, of one piece, many partite. *Petals* more or less divided, and unequal. *Stamens* ten to twenty. *Capsule* three or six angled, bursting at the apex. *Seeds* numerous, kidney-shaped.—Name from *Resedo*, to calm; from the supposed qualities of some of the species.

1. *R. Lute'ola*, Linn. (Fig. 775.) *Dyer's Rocket*, *Yellow Weed*, or *Weld*. Leaves elongate, lanceolate, undivided; calyx four cleft; stem erect.

English Botany, t. 320.—English Flora, vol. ii. p. 347.—Hooker, British Flora, vol. i. p. 220.—Lindley, Synopsis, p. 219.

Root tapering. *Stem* erect, from two to three feet high, simple or branched, leafy, smooth, striated. *Leaves* numerous, sessile, of a dark somewhat glaucous green, long, narrow, lanceolate, with a mid-rib and indistinct lateral veins, the margins entire, smooth or waved, and frequently at the base on one or both sides is a short tooth. *Inflorescence* an elongated terminal spike of numerous crowded *flowers*, on short pedicles from the axis of an awl-shaped *bractea*. *Calyx* of four oblong segments. *Corolla* greenish yellow, irregular, of three or five *petals*, the upper one three cleft, with the middle lobe notched, the lateral ones three cleft, and the lower ones when present simple linear. *Nectariferous* scale large, greenish on the upper side of the flower, the margin crenated. *Stamens* on slender *filaments*, with two celled yellow *anthers*. *Styles* short. *Capsule* short, depressed, three celled, tuberculous. *Seeds* numerous, roundish, kidney-shaped, smooth, shining.

Habitat.—Waste places frequent, especially in a calcareous or clay soil.

Annual; flowering in June and July.

This and the leaves of several other species have been valued by the ancients as possessing great power in allaying the irritation and pain of bruised or wounded and inflamed parts, hence it is that the plants of this description have attained their generic name. The *R. luteola*, or *Weld*, affords when bruised a juice, which dyers employ in tinging silk, cotton, linen, woollen goods, &c., of a yellow colour; and blue cloths, &c., are changed by it into various shades of green or

olive, it is also largely used in the production of the paint called Dutch pink. In some parts of the country it is cultivated for these purposes, and is used either when dried or fresh gathered.

2. *R. lu'tea*, Linn. (Fig. 776.) *Base Rocket*, *Wild Mignonette*. Leaves three cleft, or pinnatifid, the lower ones pinnated; calyx with six linear segments; petals six, very irregular.

English Botany, t. 321.—English Flora, vol. ii. p. 348.—Hooker, British Flora, vol. i. p. 220.—Lindley, Synopsis, p. 219.

Root woody. *Stems* several from the same root, erect, from two to three feet high, roundish, striated, smooth, or scattered over with hairs, simple or branched, leafy. *Leaves* scattered or alternate, the upper three cleft, or pinnatifid, the lower ones irregularly pinnated, with long narrow linear entire or waved or crisped on the margin, with a prominent mid-rib, and smooth, or scattered over with a few hairs. *Inflorescence* a terminal elongated spike, of numerous crowded flowers, on short pedicles, becoming longer in fruit, arising from the axis of an awl-shaped bractea. *Calyx* of six partite narrow long linear spreading segments. *Corolla* very irregular, of six petals, the two upper ones three cleft, the middle lobe narrow, short, the lateral one winged with a curled margin, the lateral petals of two unequal narrow lobes, and the two lower petals simple, linear, entire. *Nectariferous* scale large, greenish on the upper side of the flower, the margin crenated. *Stamens* on slender filaments, with large yellow anthers, of two cells. *Styles* short. *Capsule* ovate oblong, three celled, wrinkled. *Seeds* numerous, smooth, kidney-shaped.

Habitat.—Waste places in a calcareous or clay soil.

Annual or Biennial; flowering in July or August.

This species is readily distinguished from the last, by its larger yellower six-partite flowers, and its pinnatifid leaves.

The *Reseda odorata*, or Sweet Mignonette, is a well known and general favourite, not so much for the beauty of the flower or plant, as for the rich odoriferous scent which it exhales, and it is of so hardy a nature that it will grow under almost every variety of condition; it is sown upon the open borders; will grow freely in pots, boxes, &c., and with care and attention in its cultivation may be had in perfection all the year round, and by pruning and training it under a warm wall, it becomes perennial, and even putrescent, and then it is called the *Tree Mignonette*. These changes which are effected by cultivation in the constitution of plants effecting not only their growth, but their medicinal qualities, and the odoriferous secretions which they exhale, are alike interesting to the botanist, the gardener, and all who study Nature's works; for, as Wordsworth says—

“Happy is He who lives to understand—
Not human nature only, but explores
All natures,—to the end that he may find
The law that governs each; and where begins

The union, the partition where, that makes
 Kind and degree, among all visible beings ;
 The constitutions, powers, and faculties,
 Which they inherit—cannot step beyond,—
 And cannot fall beneath ; that do assign
 To every class its station and its office
 Through all the mighty commonwealth of things—
 Up from the creeping plant to soaring man.
 Such converse if directed by a meek,
 Sincere and humble Spirit, teaches love ;
 For knowledge is delight ; and such delight
 Breeds love : yet suited as it rather is
 To thought and to the climbing intellect,
 It teaches less to love than to adore,
 If that be not indeed the highest love !"

3. *R. fruticulosa*, Linn. (Fig. 777.) *Shrubby Base Rocket*. Leaves all pinnated, glaucous, waved ; calyx with five segments ; petals five, three cleft, nearly regular.

Hooker in English Botany, Supp. t. 2628.—Hooker, British Flora, vol. i. p. p. 220.—Lindley, Synopsis, Supp. p. 329.

Root woody, tapering. *Stems* several from the same root, erect, more or less branched, striated, smooth, leafy, from two to three feet high. *Leaves* all pinnated, with narrow waved glaucous smooth pinnules, paler beneath. *Inflorescence* a terminal, crowded, at length elongated spike of numerous *flowers*, of a pale yellowish colour, each elevated on a short *pedicle*, as long as the awl-shaped *bractea*, from which it arises. *Calyx* cut into five narrow linear segments. *Corolla* of five nearly regular longish three cleft petals. *Stamens* on short *filaments*, with large yellow two celled *anthers*. *Styles* short, with obtuse *stigmas*, at first erect, becoming spreading. *Capsule* four angled, four celled.

Habitat.—"On an old hedge between Marazion and Penzance, certainly wild.—*Rev. J. S. Tozer*, 1839. Unenclosed sand hills, Bootle, 4—5 miles from Liverpool.—*H. C. Watson, Esq.* The following stations, either for this or *R. alba*, have also been communicated to me:—About Dublin.—*Mr. Drummond*. Between Cork and Glenmire.—*Dr. Stokes, Mr. J. T. Mackay*. Weston-Super-Mare, Somersetshire.—*Mr. J. Woods*. Near Gosport.—*Rev. W. S. Bayton*."—*Hooker*.

Biennial or Perennial ; flowering in June.

It is doubtful if this species ought to be admitted into the list of our native plants. It is nearly allied to *R. alba*, and Hooker, in his British Flora, says that "Mr. Borrer informs me that there are specimens of this and its near ally *R. alba* in the Linnæan Herbarium, and the difference between them appears very slight. *R. alba* has shorter flower stalks, and thence more cylindrical racemes, and the terminal lobe of its leaves is more similar to the others, (less dilated than that of

R. fruticulosa);” and it is further stated that Mr. Mackay, in his Cat. of Pl. of Ireland, gives Portmarnock sands as the station for *R. alba*; but in his Flora Hibernica he refers it to *R. fruticulosa*, but considers it as a plant escaped from gardens.

ORDER IV.

DODECAGYN'IA. 12 PISTILS.

GENUS V. SEMPERVIVUM.—LINN. *Houseleek*.

Nat. Ord. CRASSULACEÆ. DE CAND.

GEN. CHAR. *Calyx* six to twelve cleft. *Petals* six to twelve. *Stamens* twice as many as there are petals. *Ovaries* as many as there are petals.—Name from *semper*, *always*; and *vivo*, to *live*; from its being always green.

1. *S. tectorum*, Linn. (Fig. 778.) *Common Houseleek*. Leaves oblong, ovate, acuminate, smooth, with ciliated margins; offsets with the leaves crowded into a rosaceous form; petals lanceolate, acuminate, twice as long as the calyx, the margins hairy.

English Botany, t. 1320.—English Flora, vol. ii. p. 350.—Hooker, British Flora, vol. i. p. 221.—Lindley, Synopsis, p. 65.

Root fibrous, from a thick fleshy stock, from which numerous offsets arise, crowded with numerous leaves in rosaceous tufts. *Leaves* thick, fleshy, of a cheerful green, pinkish at the point, oblong ovate, with an acuminate point, terminating in a mucro, keeled at the back, and the margins ciliated with simple hairs, sometimes also scattered over the under side. *Flowering stem* erect from the centre of the lateral tufts of leaves, from twelve to eighteen inches high, round, succulent, scattered over with leaves, and more or less downy. *Inflorescence* of terminal cymose branches, crowded with nearly sessile flowers from the axis of linear bracteas. *Calyx* of one piece, cleft in from six to twelve linear acute segments. *Corolla* of the same number of petals as the calyx segments, and alternating with them, lanceolate, spreading, pink. *Stamens* twice the number of the petals, with awl-shaped filaments, bearing roundish anthers, of two cells, alternately abortive, and perfect. *Ovaries* the same number as there are petals, terminated in a short style, with an obtuse stigma, and containing numerous ovules, arranged along the inner margins.

Habitat.—Old walls, house tops, &c.; frequent, but naturalized.

Perennial; flowering in July and August.

The Houseleek is a well known domestic plant, and has long been held in high esteem as a cooling application to burns, bruises, inflammations, &c. The leaves are used alone, or more generally bruised

and mixed with cream, and kept constantly applied to the part affected. It is a curious and ornamental plant, especially when in flower, and adds no little of picturesque beauty to the low thatched roofs of the rustic dwellings, and old buildings and walls in many of the rural districts.

CLASS XII. ICOSAN'DRIA.

(*Twenty or more Stamens placed upon the Calyx.*)

ORDER I.

MONOGYN'IA. 1 PISTIL.

GENUS I. PRUNUS.—LINN. *Plum.*

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* five cleft, inferior. *Petals* five. *Fruit* a persistent fleshy *drupe*, covered with a blue powder, or bloom. *Nut* smooth, having a slightly elevated seam.—*Leaves* convolute in *vernation*.—Named *περὺνη*, in Greek, according to Theophrastus.

1. *P. domestica*, Linn. (Fig. 779.) *Wild Plum Tree*. Flowers solitary, or in pairs; leaves ovate lanceolate; branches without spines; fruit oblong.

English Botany, t. 1783.—English Flora, vol. ii. p. 355.—Hooker, British Flora, ed 2. vol. i. p. 195.—Lindley, Synopsis, p. 90.

A moderate sized tree, the branches without thorns. *Leaves* ovate lanceolate, sharply serrated, sometimes glandular at the base, hairy on the under side, especially when young, nearly smooth above, the edges coiled inwards in the bud. *Footstalk* short. *Stipules* linear, deciduous, with glandular margins. *Flowers* solitary, or in pairs, on short *pedicles*. *Calyx* inferior, five cleft. *Petals* white, oblong ovate. *Fruit* oblong, rarely globular, persistent, fleshy, purple, violet green or yellow, and covered over with a fine powdery bloom.

Habitat.—Woods and hedges; naturalized.

Tree; flowering in April and May.

This is generally considered the parent of the common garden plum, of which there are upwards of three hundred varieties known, and it is thought by many that the two following species, *P. insititia* and



779

Prunus domestica.



780

Prunus insiticia.



781

Prunus spinosa.



782

Cerasus avium.



783

Cerasus padus



784

Mispilus germanica.

P. spinosa, are also varieties of it; but of all these varieties the most generally cultivated ones are apricot plums, the gages, of which there are both green and yellow, (the magnum bonum) or egg plums, the cherry, the imperial, the Saint Catherine, and numerous varieties of damsons. They are much esteemed as a fruit, and when quite ripe are not unwholesome; but if used, as they so commonly are, before being ripe, they are productive of more dyspepsia than almost any other fruit, and the excuse generally made of their being more wholesome when cooked, than as they are commonly sold in the markets half ripe, is by no means true. They are dried and sent from various parts of the Continent, and sold in the shops under the name of French plums, prunes, &c.; boiled with sugar they form an excellent preserve, and the pulp of the damsons boiled with sugar, and formed into cakes, or as it is generally called cheese, is found a useful and pleasant remedy in allaying the irritation of a tickling cough or sore throat, either when dissolved slowly in the mouth, or mixed with water into a drink, and is equally agreeable and useful to feverish patients. The cultivation of the plum is not different to that of other fruit trees; it flourishes best in a high open situation. They are generally grafted or budded on damson stocks.

2. *P. insititia*, Linn. (Fig. 780.) *Wild Bullace Tree*. Flowers in pairs; peduncles pubescent; branches downy, terminating in a spine; leaves ovate lanceolate, downy beneath; fruit globose.

English Botany, t. 841.—English Flora, vol. ii. p. 356.—Hooker, British Flora, ed. 4. vol. i. p. 195.—Lindley, Synopsis, p. 90.

A small spreading tree, with irregular round branches, downy towards the ends, and mostly terminating in a sharp straight spine. Leaves ovate or ovate lanceolate, downy beneath, especially when young, the margins serrated, curled inwards in the bud, and enveloped in brown entire scales, the inner ones greenish and fringed. Flowers in pairs, on short peduncles, clothed with pubescence. Calyx five cleft. Petals pure white, roundish. Fruit globose, dark purple violet, red, yellow and spotted, covered with a fine powdery bloom.

Habitat.—Woods and hedges.

Tree; flowering in April and May.

Of this species there are several varieties which are known by the colour of the fruit, as the black, the white, and the waxen. They have a rough acid austere taste, far from pleasant; but when boiled with an abundance of sugar, they are esteemed for making tarts, &c. The flowers, both of this and the following species, are said to be mildly laxative, and the bark contains a quantity of astringent matter.

3. *P. spinosa*, Linn. (Fig. 781.) *Black Thorn, or Sloe*. Flowers mostly solitary; peduncles smooth; branches downy, terminating in a spine; leaves elliptic, or broadly lanceolate, downy beneath; fruit globose, erect.

English Botany, t. 842.—English Flora, vol. ii. p. 357.—Hooker, British Flora, ed. 4. vol. i. p. 195.—Lindley, Synopsis, p. 90.

A small rigid bushy shrub, with a dark blackish brown bark, the branches downy towards the ends, and terminating in a short rigid spine. *Leaves* scarcely an inch long, elliptic-ovate, or broadly lanceolate, somewhat downy beneath, acutely and doubly toothed, on short footstalks. *Calyx* campanulate, with five obtuse lobes, spreading. *Petals* pure white, rounded, with a short claw. *Fruit* small, globose, blackish purple, covered with a fine powdery bloom, of a very austere astringent taste.

Habitat.—Hedges and waste places; common.

Shrub; flowering in March and April.

This species is distinguished from the last by its more bushy growth, its dark polished bark, more spinous branches, the pedicles of the flowers being smooth, and its darker more austere smaller fruit. The flowers are in clusters, and appear some time before the leaves.

The fruit of this is far more austere, with a greater degree of astringency than the last species, on account of which it is used to give the roughness to British made Port Wines. The dried leaves, when properly prepared, have a great resemblance to China tea, and some years since a manufactory of it was established on an extensive scale, and a patent taken out for the preparation of British leaves as a substitute for tea. The fraudulent adulteration of China tea with this preparation led, however, to the suppression of the manufactory. From the Parliamentary investigations, it is shown that about four million pounds of fictitious tea was annually made in this country, and used for the purpose of mixing with that brought from China.

GENUS II. CERA'SUS.—TOURN.

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* five cleft, inferior. *Petals* five. *Fruit* a persistent smooth fleshy *drupe*, globose, or umbilicated at the base, and without any bloom on the surface. *Nut* smooth, sub-globose. —*Leaves conduplicate*.—Named from Cerasus, a town in Asia, from whence the cherry is said to have been brought.

1. *C. avi'um*, Mæsch. (Fig. 782.) *Wild Cherry*. Flowers in nearly sessile umbels; peduncles slender; fruit roundish ovate, depressed; leaves ovate lanceolate, somewhat downy beneath.

De Cand. Prod. I. p. 535.—Lindley, Synopsis, p. 90.—*Prunus Cerasus*, Linn.—English Botany, t. 706.—English Flora, vol. ii. p. 354.—Hooker, British Flora, ed. 4. vol. i. p. 195.

A tall *tree*, with a round erect bole, and slightly or much divided and spreading branches the bark smooth, shining brownish ash colour,

the cuticle splitting horizontally, and closely curling up. *Leaves* from alternate buds, ovate or ovate lanceolate, petiolated, with a mid-rib and numerous lateral branches, the margins copiously serrated and tipped with small oblong glands, smooth above, more or less hairy beneath, especially in a young state, and at the base of the leaf there is mostly a pair of small glands, sometimes they are upon the footstalk. *Flowers* mostly numerous, in nearly sessile umbels, from buds at the base of the leaves, the peduncles long, slender, smooth. *Calyx* bell-shaped, with a limb of five smooth ovate lanceolate reflexed segments. *Petals* five, white, cordate, with a short claw. *Stamens* with *filaments* of various lengths, and round two celled *anthers*. *Style* longer than the stamens, with an obtuse *stigma*. *Fruit* almost ovate, depressed, the flesh very juicy and sweet, often coloured. *Nut* hard, smooth, sub-globose.

Habitat.—Woods and hedges.

Tree; flowering in May.

According to Pliny, the Cherry (*Cerasus*) was brought into Italy from Cerasus, a city in Pontus, in Asia, by Lucullus, in the year 680, A.C., and that in 120 years after their introduction into Italy, other lands had them, even as far as Britain. It is, however, believed, notwithstanding this account of Pliny's, that the Cherry is an indigenous plant to this country, from the circumstance of its being found in such situations, especially in Scotland, as to remove any suspicion of its being cultivated in that part of Britain; but no seeds are more readily conveyed uninjured by birds than those of the cherry, and as they are a favourite food of many of them, they may have been thus conveyed, and the plant have established itself in almost inaccessible situations: it is not improbable that Virgil had this in view in his *Georgics* ii., where he says—

“Some trees their birth to bounteous Nature owe;
For some without the pains of planting grow.
With osiers thus the banks of brooks abound,
Sprung from the watery genius of the ground.
From the same principles grey willows come,
Herculean poplar, and the tender broom.
But some, from seeds enclosed in earth, arise;
For thus the mastful chestnut meets the skies.
Hence rise the branching beech and vocal oak,
Where Jove of old oraculously spoke.
Some from the root a rising wood disclose;
Thus elms, and thus the salvage *cherry* grows:
Thus the green bay, that binds the poet's brows,
Shoots and is sheltered by the mother's boughs.”

Dryden.

The Cherry appears to have been a very favourite fruit with the Romans, of which they had eight varieties; but now in the catalogue of the London Horticultural Society 219 are enumerated, and of these about forty are commonly cultivated in our gardens and orchards. Of

these the Morellos, the Maydukes, the Archdukes, the Kentish, the Honey, and many others, all varieties of the *C. caproniana*, De Cand. are the most wholesome and agreeable, either for dessert or preserving; and the varieties of *C. Duracina*, De Cand. as the white, the black, the yellow, the red, and the bleeding heart cherries, may be enumerated as the most beautiful and agreeable fruits, but not so wholesome, on account of the flesh being hard and less digestible; but our indigenous species, the *C. avium*, the bird or fowl cherry or hog berry of Scotland, bears a nauseous bitter fruit; but nevertheless it is eaten in some countries probably from the want of better, and when steeped in whiskey or gin, it is said greatly to improve the flavour of those spirits. The variety *macrocarpa*, Ser. cultivated in Switzerland, and called *Kirscheuwasser*, is a large fruited variety, from which a spirit or kind of cherry-brandy is distilled; and the *mariasia*, cultivated in Dalmatia, is used for the making of the much esteemed liquor *Maraschino*. The wood of most of the species is hard, and makes excellent furniture; that of *C. Mahaleb*, Mill. is red, and sweet scented, and is much esteemed by cabinet-makers, which is known by the name of St. Lucia wood.

Cherry trees are very ornamental; and in woods or shrubberies, where it is desirable to encourage the blackbird, thrush, &c., they are very valuable, as the fruit is the favourite food of these and many other birds; and the double flowering variety is extremely handsome, mostly bearing a profusion of flowers, extremely double, and appearing most like one of our small double roses. For the purpose of the fruit, Cherries are grafted or budded on seedling plants grown from the nuts, and the best and most hardy stocks are from the wild species.

2. *C. Pa'dus*, De Cand. (Fig. 783.) *Bird Cherry*. Flowers in elongated racemes; leaves ovate lanceolate, or ovate, thin, smooth, deciduous, finely serrated; the footstalks with two glands at the top.

De Cand. Prod. 2. p. 539.—Lindley, Synopsis, p. 90.—*Prunus Padus*, Linn.—English Botany, t. 1383.—English Flora, vol. ii. p. 354.—Hooker, British Flora, ed. 4. v. 1. p. 195.

A moderate sized tree, with a smooth even bark, hard, close grained wood, and spreading branches. *Leaves* from scattered buds, ovate lanceolate, with an acuminate point, or ovate, quite smooth, of a cheerful green, a thin texture, and the margins very finely serrated, with small simple or double teeth, of a strong scent when bruised. *Petioles* slender, having at the top a pair of small prominent glands, and at the base a pair of small linear *stipules*, which soon fall away. *Inflorescence* simple, pendulous, or leafy racemes, of numerous flowers, each on a simple *footstalk*. *Calyx* with a five cleft limb, of obtuse lobes. *Petals* pure white, obovate, with a toothed or finely jagged margin. *Stamens* with awl-shaped *filaments*, and the *anthers* roundish, of two cells. *Fruit* round, small, black, and bitter, with a very austere taste, the *nut* large for the size of the fruit, rough.

Habitat.—Woods and hedges, not unfrequent; especially in the Northern Counties of England and Scotland.

Tree; flowering in May.

The Bird Cherry is a pretty ornamental small sized tree, having a cheerful appearance from its numerous pale leaves, and when in flower its pendulous racemes are highly ornamental, but they continue, a very short time, though succeeded by the fruit, which is equally pretty. The berries are mostly black, sometimes green, and more rarely red. Their taste is very austere and nauseous, though greedily devoured by birds, and on that account those persons who wish to encourage the blackbird or thrush in their plantations, will do well to furnish them with this tree as a favourite food, and at the same time wherever green trees are not an object, few of the deciduous ones are more ornamental. It is a free grower, and flourishes in almost all kinds of soil, but best in a dry one. The wood is beautifully veined, and highly esteemed by cabinet-makers for ornamental purposes; and the bark is used with success in the cure of some stages of venereal affections, according to the account of the Stockholm Transactions.

ORDER II.

PENTAGY'NIA. 5 Pistils, (*but variable*).

GENUS III. MESPI'LUS.—LINN. *Medlar*.

Nat. Ord. ROSA'CEÆ. JUSS.

GEN. CHAR. *Calyx* five cleft, foliaceous. *Petals* five. *Disk* large. *Styles* two to five, smooth. *Fruit* turbinate, the area at the apex much divided, and exposing the hardened ends of the cells.—Name from *μισπιλον*, the Greek word for *Medlar*.

1. *M. Germani'ca*, Linn. (Fig. 784.) *Common Medlar*. Leaves lanceolate, pale and downy beneath; flowers solitary.

English Botany, t. 1523.—English Flora, vol. ii. p. 360.—Hooker, British Flora, ed. 4. vol. i. p. 196.—Lindley, Synopsis, p. 104.

A small tree, with smooth brown bark, the branches much divided and spreading, downy at the extremity. *Leaves* alternate, deciduous, lanceolate or oblong, lanceolate, with an acuminate point, the margins finely and irregularly serrated, smooth, or scarcely downy above, pale and downy beneath, the *petiole* short, terminating in a stout mid-rib, and branched lateral veins. *Flowers* solitary at the end of the branches. *Bractææ* linear. *Calyx* very downy, with linear leafy spreading segments, from half an inch to an inch long, persistent. *Petals* white, fountish ovate, creased and waved on the margin, with a short claw, and reticulated with branched divided veins. *Stamens* with awl-shaped

filaments, and oblong *anthers*, of two cells. *Styles* five, downy at the base, and encompassed with an elevated *disk*. *Stigmas* club-shaped. *Fruit* depressed and open at the top, exposing the ends of the five *carpels*.

Habitat.—Hedges in Cheshire and Sussex, Surrey, and Jersey; naturalized.

Tree; flowering in May.

The Medlar, in a wild uncultivated state, has its barren branches terminated in a sharp spine; but by cultivation these barren branches are developed into fruitful ones, and the spines consequently disappear. The fruit in a fresh state is austere and uneatable, but by keeping, or when frosted, the fleshy part becomes mellowed and soft, and in that state is by some persons highly esteemed. It is not, however, much cultivated in England; but on the Continent, in the months of November and December, it is one of the most abundant fruits in the market.

GENUS IV. CRATÆGUS.—LINN. *Hawthorn*.

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* five cleft, with acute segments. *Petals* five. *Styles* one to five. *Fruit* oval or round, the apex closed over the ends of the cells.—Name from *κράτος*, *strength*; in allusion to the strength of the wood and toughness of the branches.

1. *C. Oxycantha*, Linn. (Fig. 785.) *Hawthorn*, *Whitethorn*, or *May*. Leaves obovate, three or five lobed; the segments cut, serrated, or entire, smooth, shining; flowers in corymbs; styles one to three; calyx smooth, with acute segments.

Hooker, British Flora, ed. 4. vol. i. p. 196. —Lindley, Synopsis, p. 104.—*Mespilus Oxycantha*, Gærtn.—English Botany, t. 2504.—English Flora, vol. ii. p. 359.

β. *eriocarpa*, Lind. Leaves oblong, three or five cleft, slightly serrated; tube of the calyx densely hoary.

Lindley, Synopsis, p. 104.

Shrub, or small tree, with very hard close grained wood, and smooth blackish brown bark, much branched, and with lateral sharp awl-shaped spines. *Leaves* numerous, alternate, or tufts from lateral buds, on longish slender footstalks, three or five lobed, the lobes cut or serrated, smooth, and more or less shining above, pale and veiny beneath, with a mid-rib and numerous lateral much divided and reticulated veins, the base of the leaf rounded or wedge-shaped. *Inflorescence* lateral and terminal corymbs, of numerous flowers, on round slender *pedicles*, smooth or downy. *Calyx* with a conical tube and five cleft limb, of acute segments. *Petals* white, roundish, with a short



785

Crataegus oxycantha.



786

Cotoneaster vulgaris.



787

Pyrus communis.



788

Pyrus malus



789

Pyrus torminalis.



790

Pyrus aria.

claw, the margin mostly waved or crisped. *Stamens* on awl-shaped *filaments*, with ovate *anthers*, of two cells, of a pink colour, becoming blackish. *Styles* slender, from one to three flowers on the same plant. *Stigma* oblique. *Fruit* an ovate or round poma, with hard bony carpella, varying in number with the styles, and enveloped in insipid somewhat mealy flesh.

Habitat.—Woods and hedges.

Shrub or tree; flowering in May.

The *Cratægus* is an extensive genus of very ornamental hardy shrubs or trees; some of them are armed with spines, and others are not, and the leaves are simple or cut. Our only species, the *C. oxyantha*, forms the natural thickets and bushes in all parts of the country; it forms our best fences, from its hardness: it is mostly profusely furnished with spines, and will bear cutting, clipping, and laying, and when even the very old plants are cut down to near the ground, they put forth a profusion of young shoots. Some of the varieties, when properly cut, form highly ornamental small trees, which adorn our parks and lawns, and especially the double and scarlet blossomed, for it blossoms most profusely, and exhales a very agreeable fragrance.

“From the *White thorn* the May-flower shed
Its dewy fragrance round our head.”

And Shakspeare says in his play of Henry the Fourth—

“Gives not the Hawthorn bush a sweeter shade
To shepherds looking on their silly sheep—
Than doth a rich embroider’d canopy
To Kings, that fear their subjects treachery.”

It is associated with many of our earliest and dearest recollections; for

“Every shepherd tells his tale
Under the Hawthorn in the dale.”

And Wordsworth, in his extremely beautiful poem on “The Thorn,” has thrown a charm around these ancient landmarks, as they stand with their rugged members on the hill top or mountain side; and as the wanderer passes over the barren moor land or forest waste, he will be ready to exclaim that this must be the Thorn of Wordsworth, of which he says—

“There is a Thorn—it looks so old
In truth, you’d find it hard to say
How could it ever have been young,
It looks so old and grey.
Not higher than a two-year’s child
It stands erect this aged Thorn;
No leaves it has, no thorny points;
It is a mass of knotty joints,
A wretched thing forlorn.
It stands erect, and like a stone
With lichens it is overgrown.
Like rock or stone, it is o’ergrown.”

With lichens to the very top,
 And hung with heavy tufts of moss
 A melancholy crop:
 Up from the earth these mosses creep,
 And this poor Thorn they clasp it round
 So close, you'd say that they were bent
 With plain and manifest intent,
 To drag it to the ground,
 And all had joined in one endeavour
 To bury this poor Thorn for ever.'

It is not, however, in the spring alone that the Thorn charms us with its blossoms, or regales us with its scents, but its cheerful foliage lines our rural lanes through all the summer months, and then its autumnal fruit hangs in many a rosy cluster, furnishing food to numerous birds during the winter. The wood is hard, tough, and close grained, useful for many purposes, but it is of slow growth, and of no great size. Many of the exotic species are now coming into more general cultivation, and several from their great beauty and elegance will, no doubt, become favourite shrubs for lawns and open plantations.

The *C. Azorolus*, Linn. is common in Italy, and the fruit, which has a dry sweetish fleshy pulp, is sold in considerable quantities in the markets, and appears to be esteemed as a dessert fruit.

GENUS V. COTONEA'STER.—LIND. *Cotoneaster*.

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* with five short teeth. *Petals* five, small, erect.

Fruit turbinate, with the *nuts* adhering to the sides of the calyx, but the ends free.—Named from *Cotoneum*, the Quince.

1. *C. vulgaris*, Lindl. (Fig. 786.) *Common Cotoneaster*. Leaves ovate, rounded at the base; calyx and peduncles smooth.

Lindley, Synopsis, p. 104.—Hooker, British Flora, ed. 4. vol. 1. p. 196.—*Mespilus Cotoneaster*, Linn.—English Botany, Suppl. t. 2713.—English Flora, vol. ii. p. 360.

A small bush, with alternate spreading branches, the bark smooth, brown, pale and downy towards the extremities. Leaves numerous, alternate, ovate, rounded at the base, entire, on short footstalks, green and smooth above, pale and woolly beneath, with a straight mid-rib and branched lateral veins. Stipules in pairs, linear, tapering, smooth, with a fringed margin, of a reddish colour. Flowers solitary, or several together in a cymose manner, arising from the same spur as the leaves, on short peduncles, smooth or downy. Bractees small, red, lanceolate, acute. Calyx turbinate, with a five cleft limb, of ovate incurved segments, very woolly on the margins. Petals five, small, orbicular, erect, pink. Stamens with erect awl-shaped filaments, as long as the teeth of

the calyx. *Styles* three, sometimes four, slender. *Fruit* turbinate, with three or four bony carpels, adhering to the sides of the mealy calyx, but the ends are free, and closed over by the calyx segments, of a crimson colour, sometimes black or yellow.

Habitat —Limestone cliffs at Ormeshead, Caernarvonshire.

Shrub; flowering in July.

The Cotoneaster is a small shrub, very leafy, and recommended by Linnæus for making low fences in dry broken ground, on account of the roots being very long, and running deep into the ground. Its flowers are often polygamous, and the calyx, as well as the peduncle, is sometimes scattered over with hairs; but its leaves are not elliptical, with both the base and apex obtuse, the only permanent character by which it is distinguished from *C. tomentosa*, Lindl., a species found in the alpine districts of the Continent.

GENUS VI. PYRUS.—LINN. *Pear Apple and Service.*

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* with five segments. *Petals* five, roundish. *Styles* two to five. *Fruit* a pomum (apple), fleshy, with from two to five two seeded cartilaginous cells.—Name from the Celtic *peren*, a *pear*. In Greek *ἄπριος*, from *api*, Celtic; whence *apple* in English, and *apfel* in German.

* *Leaves* simple.

1. *P. communis*, Linn. (Fig. 787.) *Wild Pear-tree*. Leaves simple, ovate, petiolated, serrated; peduncles corymbose; styles free; fruit turbinate.

English Botany, t. 1784.—English Flora, vol. ii. p. 362.—Hooker, British Flora, ed. 4. vol. i. p. 196.—Lindley, Synopsis, p. 105.

A tall handsome tree, with a straight bole and branches, the bark smooth, greyish brown, the barren branches terminating in a strong spine. *Leaves* numerous, alternate, and in clusters from the buds or spurs, petiole rather long, bearing a roundish ovate or ovate acuminate leaf, with a more or less distinctly serrated margin, when young downy, especially beneath, and copiously fringed on the margins; as the leaf becomes older the downiness falls away, and it is a smooth shining green. *Stipules* slender, linear, soon falling away. *Inflorescence* terminal, corymbose, mostly of numerous flowers, with long downy peduncles. *Calyx* downy, with a spreading limb, much shorter than the white ovate short clawed *petals*. *Stamens* with slender awl-shaped *filaments*, and roundish *anthers*, of two cells, a pink colour, becoming brown. *Styles* five, free, with acute *stigmas*. *Fruit* obovate, turbinate, hard, and mostly of an austere taste in a wild state.

Habitat.—Woods and hedges; not uncommon.

Tree; flowering in April and May.

This is the origin of our Pears, which are well known to be almost innumerable both in appearance and quality. Changes are produced by care and cultivation, rendering a naturally austere unpleasant fruit, one of the most delightful that is brought to table. The wood is fine grained, light, and durable, and is much esteemed by turners for fine work, bobbins, &c.

The Romans had about thirty-six sorts of Pears, but now there are about eight hundred, many of which, however, are not worth cultivating. They are divided into dessert and baking fruits, melting or butter fruits, breaking and perry fruits.

The expressed juice of the Pear, when fermented, forms the beverage known by the name of perry, the making of which is chiefly confined to Worcestershire, where the kinds most approved for this purpose are cultivated; and of such importance, it would appear, was this commodity considered, that the figures of three Pears forms a part of the armorial bearings of the city of Worcester.

2. *P. Ma'lus*, Linn. (Fig. 788) *Crab-apple*. Leaves simple, ovate, acutely crenated, rugose, smooth or downy beneath; flowers in simple sessile umbels; fruit smooth, globose.

English Botany, t. 179—English Flora, vol. ii. p. 363.—Hooker, British Flora, ed. 4. vol. i. p. 196.—Lindley, Synopsis, p. 105.

A low tree, with spreading much divided and irregular branches, without thorns, the bark smooth, greyish brown. *Leaves* alternate, simple, ovate or elliptic ovate, with a short acuminate point, somewhat rugose, with acutely crenated margins, when young downy, especially beneath, *petiole* with linear stipules, united to the base. *Inflorescence* in sessile umbels, with smooth sometimes downy peduncles and calyx. *Petals* varying from white to pale delicate pink or rose colour, fragrant, ovate, with a short claw. *Stamens* with slender awl-shaped *filaments*, and roundish ovate two celled *anthers*, of a pink colour. *Styles* five, united at the base, and more or less downy. *Fruit* globose, depressed at the top and bottom in an umbilicated manner.

Habitat.—Woods and hedges; not unfrequent.

Tree; flowering in May.

The Apple is one of our most important orchard fruits, and is of more value than any other, chiefly from the circumstance of its keeping a much longer time without any other precaution than that of gathering them quite dry, and without bruising them and keeping them in a place free from damp and frost. With these precautions many sorts may be kept in a perfect state of preservation for the use of the kitchen and as a dessert, until the spring fruits are ripe. The expressed juice of the unripe Apples, and especially that of the Wild-crab, is extremely acid and austere. The latter is known by the name of verjuice, and has been used as a domestic remedy for the cure of scalds and sprains. All the species of Apples abound with a

greater or less proportion of malic acid, in combination with sugar, gum, essential oil, and pulpy vegetable matter. The expressed juice, after it has undergone the process of fermentation, is known by the name of *cider*. The kind of Apples most esteemed for the purpose of making cider are grown in the greatest abundance in the counties of Devon, Somerset, Worcester, and Hereford. It is calculated that the average quantity of cider and perry which is made in England is 100,000 barrels, and that about three-fourths of this is cider, the greater part of which is exported to the East and West Indies and America, where it is much more esteemed than at home.

The Romans do not appear to have had more than about twenty-two sorts of Apples, but at the present time we have, by the means of cultivation, a catalogue of varieties amounting to between one and two thousand, which are divided into dessert, baking, and cider fruits, of which there are great numbers of different kinds which have received names, as pippins, russets, codlings, &c.

The Apple is by no means a handsome tree, but the delicate pink of its blossom is very beautiful. The *R. spectabilis*, or the Chinese crab, and the *P. prunifolia* and *P. baccata*, or Siberian crabs, are pretty ornamental trees, both in blossom and fruit; the latter forming, when boiled and candied with sugar, an excellent preserve.

The various kinds of Apple are propagated either by layers or cuttings, but most frequently by grafting on crab-stocks, and varieties are obtained by sowing the seeds.

The tree lives to a great age, and, if favourably situated, is generally very prolific. The wood is close grained and soft, and is valuable to turners and cabinet-makers. It will flourish in almost all climates in the temperate zone, and in almost every kind of soil or situation.

3. *P. torminalis*, Sm. (Fig. 789.) *Wild Service-tree*. Leaves simple, ovate, heart-shaped, lobed, and serrated, the lower lobes spreading; flowers with corymbose peduncles.

Cratægus torminalis, Linn.—English Botany, t. 298.—English Flora, vol. ii. p. 363.—Hooker, British Flora, ed. 4. vol. i. p. 196.—Lindley, Synopsis, p. 105.

A rather large tree, with spreading branches, the bark grey, smooth. *Leaves* numerous, alternate, large, ovate, heart-shaped at the base, broad, with from five to seven pointed serrated lobes, the lower ones spreading much more than the others, mostly broader and distant, paler on the under side, with a stout mid-rib and branched lateral veins, downy when young, especially on the under side. *Petiole* long, slender, swollen and jointed at the base. *Inflorescence* corymbose, with branched peduncles, downy, as well as the *calyx*, whose limb of linear lanceolate segments is fringed with glandular serratures. *Petals* roundish, ovate, with a short claw, white and spreading. *Stamens* with long slender *filaments*, and roundish two celled *anthers*, of a pinkish

colour. *Styles* about as long as the stamens, three to five. *Fruit* small, greenish white, scattered over with small brown spots, with cells the same number as the styles.

Habitat.—Woods and hedges, especially in the Midland and Southern Counties.

Tree; flowering in April and May.

This species is called *P. torminalis*, from the griping pains which the unripe fruit produces when eaten, an effect which it is not so liable to produce after having been mellowed by the frost; it is then of a pleasant acid flavour, and said to give tone to the stomach and bowels, but is not much esteemed.

4. *P. Aria*, Sm. (Fig. 790.) *White Beam-tree*. Leaves ovate, simple, cut and serrated, white and downy beneath; flowers in a dense flat corymb; fruit globose.

English Botany, t. 1858.—English Flora, vol. i. p. 366.—Hooker, British Flora, ed. 4. p. 197.—Lindley, Synopsis, p. 105.—*Cratægus Aria*, Linn.

β. *intermedia*. Leaves more deeply cut.

β. English Flora, vol. ii. p. 366.—*P. intermedia*, Ehrhart.—Lindley, Synopsis, p. 105.

A moderate sized tree, with straight branches, the younger ones downy, the bark smooth, reddish brown. *Leaves* alternate, and several in a cluster at the ends of the branches, ovate or ovate oblong, doubly serrated, or cut into more or less deep cut lobes, and serrated, not pinnatifid, nearly smooth above, white and downy beneath, with the downy footstalk running into a straight mid-rib, with transverse branches. *Inflorescence* a large flat topped corymb, of numerous white flowers, the branches much divided and downy. *Bractæas* small, linear, soon falling away. *Calyx* very woolly, the limb of short segments. *Petals* roundish ovate, with a short claw. *Stamens* with linear awl-shaped *filaments*, and ovate *anthers*, of two cells. *Styles* two, sometimes three or four, woolly at the base. *Fruit* globular, scarlet, dotted, mealy, with as many two seeded cells as there are styles.

Habitat.—Woods and hedges in mountainous districts, especially in a limestone soil in various parts of England and Scotland. Cunnamara and Killarney, Ireland. β. on the walls at Castle Dinas y Bráu, Denbighshire.

Tree; flowering in May and June.

The leaves of this species vary greatly in the more or less deeply cut lobes, and from these appearances the *P. intermedia*, Ehrhart, has been separated; but it and perhaps the following species ought to be united to it.

5. *P. pinnatifida*, Ehrh. (Fig. 791.) *Bastard Mountain Ash*. Leaves deeply pinnatifid, or oblong and pinnated, or deeply pinnatifid



791

Pyrus pinnatifida.



792

Pyrus aucuparia.



793

Pyrus domestica.



794

Spiraea salicifolia.



795

Spiraea filipendula.



796

Spiraea ulmaria.

at the base; the lobes oblong, lanceolate, entire or serrated towards the point, downy beneath; flowers in dense flat corymbs.

English Botany, t. 2331.—English Flora, vol. ii. p. 366.—Lindley, Synopsis, p. 103.—*P. Aria*, var. *β. pinnatifida*.—Hooker, British Flora, ed. 4. vol. i. p. 197.—*Sorbus hybrida*, Linn.

A moderate sized tree, clothed with a smooth grey bark, the branches towards the ends downy. *Leaves* alternate, numerous towards the extremities of the branches, oblong and serrated, and towards the base cut into oblong lanceolate entire or serrated lobes, in a pinnated or pinnatifid manner, smooth above, white and cottony beneath, as well as the footstalks. *Stipules* small, awl-shaped, soon falling away. *Inflorescence* a large flat topped corymb, of numerous white flowers, the branches and calyx white, with woolly pubescence. *Petals* roundish ovate, with a short claw. *Stamens* with linear awl-shaped filaments, and ovate two celled anthers. *Styles* three or four. *Fruit* globular, scarlet, mealy, with the same number of cells as styles.

Habitat.—In rocky situations; Isle of Arran, and near Dartford.

Tree; flowering in June.

**** Leaves pinnate.**

6. *P. aucuparia*, Gärtn. (Fig. 792.) *Quicken-tree*, *Mountain Ash* or *Rowan-tree*. *Leaves* pinnated, smooth; leaflets in pairs, acutely serrated; flowers corymbose; fruit small, globose.

English Flora, vol. ii. p. 365.—Hooker, British Flora, ed. 4. vol. i. p. 197.—Lindley, Synopsis, p. 106.—*Sorbus aucuparia*, Linn.—English Botany, t. 337.

A tall handsome tree, with straight not much divided branches, the bark smooth, shining, reddish brown, the branches round, smooth grey. *Leaves* alternate, with a long round common footstalk. *Leaflets* elliptic, acute, nearly sessile, about an inch long, unequal at the base, in about eight pairs, and a terminal one, a smooth cheerful green above, pale beneath, at first downy, becoming smooth, the mid-rib stout, with slender lateral branches. *Inflorescence* a terminal corymb, of numerous white flowers, the branches much divided and downy, the lower ones often accompanied with leaves. *Calyx* with acute segments, smooth at the points. *Petals* roundish, concave, with a short claw. *Stamens* with awl-shaped filaments, and roundish ovate anthers, of two cells. *Styles* three or four, shorter than the stamens, the stigmas obtuse. *Fruit* scarlet, globose, very juicy, sour and bitter, with as many two seeded cells as there are styles.

Habitat.—Mountains and Woods, not unfrequent; especially in the Highlands of Scotland.

Tree; flowering in May and June.

The Mountain Ash, so called from its growing in mountainous situations, where, as Virgil sings—

“ Nature seems t’ ordain
The rocky cliff for the wild ash’s reign.”

It is also known by the name of Rowan, roddon, quicken, or witchen tree, all figurative names; for this tree is supposed to have been sacred amongst the Druids, and now it is frequently planted near houses and villages in the Highlands of Scotland, for the purpose, as they superstitiously suppose, of keeping off evil spirits. It is a tall, erect, smooth shining barked tree, of considerable beauty, and a great favourite in plantations or groves; for

"No eye can overlook, when mid a grove
Of yet unfaded trees she lifts her head,
Decked with Autumnal berries, that outshine
Spring's richest blossoms."

Wordsworth.

The wood is hard, and fine grained, and is chiefly used by turners and mathematical instrument makers. The long, slender tough branches are much esteemed for making whip handles. The bark is astringent, and used by tanners. The berries afford a dye, and when bruised and fermented, they yield by distillation a strong spirit; and boiled with sugar, they form a pleasant kind of jam.

7. *P. domestica*, Sm. (Fig. 793.) *True Service-tree*. Leaves pinnate; leaflets in pairs, acutely serrated, downy beneath; flowers panicle; fruit small, obovate.

English Botany, t. 350.—English Flora, vol. ii. p. 364.—Hooker, British Flora, ed. 4. vol. i. p. 196.—Lindley, Synopsis, p. 105.—*P. sorbus*, Gærtn.—*Sorbus domestica*, Linn.

A large sized tree, with smooth bark, and not bearing fruit until of a great age. Leaves alternate, pinnate, with a long round common footstalk, leaflets oblong, acute, nearly sessile, about an inch long, unequal at the base, serrated from about the middle with unequal often double serratures, smooth above, downy beneath, but often becoming smooth, the mid-rib with branched slender veins. Inflorescence a terminal corymbose panicle, of numerous whitish flowers, its branches downy, the lower ones often accompanied with leaves. Calyx woolly, with five acute segments. Styles five, with obtuse concave stigmas. Fruit obovate, about an inch long, of a reddish spotted colour, with an austere taste, causing much pain and irritation in the mouth and throat when tasted in an unripe state; but when frosted and mellow, they become soft and brown, and resemble a Medlar, both in colour and taste, though not so agreeable.

Habitat.—The mountainous parts of Cornwall, and in the moorlands of Staffordshire, but not common.

Tree; flowering in May.

The fruit of the Service-tree has some resemblance to the Medlar, but is not considered so good, and is now seldom cultivated; it is an ornamental plantation tree, but not so handsome as the last species, and its fruit is not so showy. It is much more common

in some parts of France and Italy than with us, and appears to be as much esteemed in those countries as the Medlar.

GENUS VII. SPIRÆA.—LINN. *Spiræa*, Dropwort, or Meadow-sweet.

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* five cleft, inferior, persistent. *Petals* five. *Fruit* of from one to twelve *capsules*, two valved, and from two to four seeded.—Name from *σπῆρα*, a wreath or cord; from its having been used by the ancients to form wreaths or coronals.

1. *S. salicifolia*, Linn. (Fig. 794.) *Willow-leaved Spiræa*. Shrubby, the whole plant smooth; leaves oblong, lanceolate, unequally serrated, racemes terminal, compound; calyx with triangular segments.

English Botany, t. 1468.—English Flora, vol. ii. p. 368.—Hooker, British Flora, ed. 4. vol. i. p. 197.—Lindley, Synopsis, p. 89.

A small branched shrub, about four feet high, with straight round slender divided leafy branches, the bark smooth, reddish brown. *Leaves* alternate, quite smooth, paler beneath than above, on short footstalks, oblong, or elliptic lanceolate, unequally and more or less doubly serrated, the mid-rib slender, with five branched lateral veins. *Inflorescence* a terminal close spicate raceme, or a compound branched racemose panicle. *Flowers* numerous, crowded, small, of a pale pink colour, without odour. *Bractæas* small, linear, somewhat downy. *Calyx* smooth, inferior, with a short five cleft limb, of triangular segments. *Petals* roundish ovate, with a short claw. *Stamens* with linear *filaments*, and roundish *anthers*, of two lobes. *Styles* shorter than the *stamens*, with an obtuse stigma. *Capsules* smooth, ovate, pointed, membranous, of two cells. *Seeds* minute.

Habitat.—Moist woods in mountainous situations. Westmoreland, Cumberland, Scotland, and several parts of England; but probably an outcast from gardens.

Shrub; flowering in July.

This is an extremely pretty deciduous shrub, frequently planted in our gardens and shrubberies, and flourishes in almost all kind of soil and situations, but prefers a wet one. It is a native of Siberia, Tartary, and Bohemia; and from our gardens it has escaped and located itself in situations apparently wild.

2. *S. Filipendula*, Linn. (Fig. 795.) *Common Dropwort*. Herbaceous leaves interruptedly pinnated; leaflets oblong, deeply cut and serrated; flowers in a loose corymbose panicle; calyx reflexed; capsules parallel, villous.

English Botany, t. 284.—English Flora, vol. ii. p. 369.—Hooker, British Flora, ed. 4. vol. i. p. 197.—Lindley, Synopsis, p. 89.

Root with numerous stout cord-like fibres, terminating in a fleshy tuber, of an oblong shape, and frequently bearing several on the same fibre one above another. *Stem* from twelve to eighteen inches high, roundish, striated, smooth, simple, much crowded with leaves in the lower part, distant above. *Leaves* from two to four inches long, or more, smooth, with a round common footstalk, spreading or depressed, elegantly pinnated with numerous oblong opposite and alternate leaflets, with small intermediate ones, all deeply cut into unequal serrated acute lobes, a dark green, paler beneath, and branched with veins. *Stipules* linear on the lower leaves, rounded on the upper, attached on one side to the footstalk, unequally cut or serrated on the margin. *Inflorescence* a terminal branched cymose panicle, of numerous cream coloured flowers, pinkish externally. *Calyx* with roundish oblong obtuse reflexed segments. *Petals* obovate, with a short claw. *Stamens* with short linear filaments, and roundish ovate anthers, of two cells. *Styles* very short, curved. *Stigma* large, obtuse. *Capsules* linear, about ten, parallel, villous, thin and membranous, of two cells.

Habitat.—Dry open pastures, especially in a chalky or gravelly soil. Perennial; flowering in July.

Dropwort is a pretty esteemed garden flower, which by cultivation becomes double, and appears like a number of miniature roses. The tubers contain a considerable quantity of farinaceous matter, which Linnæus says forms no despicable substitute for bread.

3. *S. Ulmaria*, Linn. (Fig. 796.) *Meadow-sweet*, *Queen of the Meadows*. Herbaceous, leaves interruptedly pinnated, the terminal leaflet three or five lobed, the lateral ones ovate, undivided, serrated, white and downy beneath; flowers in compound cymes; calyx reflexed; capsules smooth, contorted.

English Botany, t. 960.—English Flora, vol. ii. p. 369.—Hooker, British Flora, ed. 4. vol. i. p. 197.—Lindley, Synopsis, p. 89.

Root fibrous, without tubers. *Stem* erect, from three to four feet high, angular, furrowed, smooth, leafy and branched upwards. *Leaves* alternate, with the common footstalk, furrowed, and sometimes downy, interruptedly pinnate, the large lateral leaflets ovate, the terminal one much the largest, and three or five lobed, the intermediate ones small, all with the margins unequally and acutely serrated, white and downy underneath, and marked with a prominent mid-rib and branched lateral ones. *Inflorescence* proliferous, cymose, panicles of numerous flowers. *Calyx* with five acuminate reflexed segments. *Petals* roundish, with a short claw. *Stamens* with slender filaments, and roundish anthers, of two cells. *Styles* short, with capitate stigmas. *Capsules* five to eight, oblong, kidney-shaped, smooth, and disposed in a spiral manner.

Habitat.—Meadows, banks, and wet places; frequent.

Perennial; flowering in June and July.

The flowers of this species have a very powerful smell, resembling that of the Hawthorn, and were supposed at one time to possess antispasmodic properties, but are not now used in medicine. The leaves are slightly bitter, and somewhat astringent. It is refused by most cattle, and seems to be a more ornamental than useful plant. From its frequently growing in meadows, and the fragrance of the flowers, it has got the name of Meadow-sweet, and to these qualities add the beauty of the plant and its flowers, and the title to its appellation of the Queen of the Meadows will be found not inappropriate, and with Mrs. Hemans we may say—

“ This foam like meadow sweet,
Is from the cool green shadowy river nook,
Where the stream chimes around th' old mossy stones,
With sound like childhood's laughter.”

ORDER III.

POLYGYN'IA. MANY PISTILS.

GENUS VIII. RO'SA.—LINN. *Rose*.

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* urn-shaped, limb of five segments, tube fleshy, the apex constricted into a ring, or glandular disk. *Petals* five, and with the stamens inserted before the disk. *Carpels* numerous, bristly, inclosed in the calyx tube.—Name from *rhos*, red in Armorican; whence the Greek *ῥόδον*, a *rose*; and *rosa*, Latin.

1. CINNAMOMEÆ, Lind. *Branches setigerous. Prickles scarcely curved, sometimes wanting. Flowers with bractea. Leaflets lanceolate or oblong, without glands. Disk thin.*

1. *R. Dickso'ni*, Lind. (Fig. 797.) *Dickson's Rose*. Branches flexuous, with a few slender subulate scattered prickles; leaflets ovate, unequal, with coarse irregular double serratures, hoary, and slightly glandular beneath; bractea large; calyx segments long, simple; fruit naked, ovate urceolate.

Lindley's Trans. of Hort. Soc. v. 6. p. 224.—English Botany, Supp. t. 2707.—Hooker, British Flora, ed. 3. vol. i. p. 226.—*R. Dicksoniana*.—Lindley, Synopsis, p. 99.

An upright shrub, with divaricated flexuous branches, the bark of a bright red, pale green when young. *Prickles* slender, awl-shaped, straight, or slightly curved and dilated at the base, in pairs beneath the leaves, and scattered over the branches, though not very numerous. *Leaves* with the common footstalk downy, and mostly with a few

minute prickles upon it, as well as glands. *Leaflets* from five to seven, large, ovate, clothed with pale pubescence, and somewhat glandular beneath, the margins unequally and mostly doubly serrated, rarely simple. *Stipules* large, thin, pale, with a fringed glandular margin. *Flowers* with bristly *peduncles*, thickened and fleshy at the summit, the *bracteas* large, broad, concave. *Calyx* with long slender simple segments, leafy at the point, downy and copiously setose at the back. *Petals* shorter than the calyx segments, a deep pink. *Styles* included within the calyx tube, hairy. *Stigmas* roundish, depressed. *Fruit* rather large, ovate, with a more or less lengthened neck, orange red, and mostly with a few setæ upon it, and crowned with the persistent spreading or connivent segments.

Habitat.—Ireland, *Mr. Drummond*.

Shrub; flowering in June.

This species, said to have been found in Ireland by Mr. Drummond, bears some resemblance to *R. villosa*, Lind. especially in the general appearance of the leaves, and the thickened summit of the peduncles, which ripens with the fruit. It is a smaller plant, and its deep coloured bark, simple calyx segments, the nearly smooth fruit, and much less prickly stem, are characters sufficient to distinguish them from each other.

The genus *Rosa* is one of our most extensive and natural. There are about two hundred species known, and from these, by means of cultivation, a list of nearly as many thousands are enumerated, which are divided under the following heads:—

1. *Burnet Roses* are varieties obtained from the *R. spinosissima*, Linn.
2. *Damask Roses* are varieties obtained from the *R. Damascena*, Mill. a native of Syria.
3. *Cabbage*, or *Hundred Leaf Roses*, are varieties obtained from *R. centifolia*, Linn. a native of the South of Europe, and amongst these are the Moss Roses.
4. *French Roses* are varieties obtained from the *R. gallica*, Linn. a native of the South of Europe.
5. *White Roses* are varieties obtained from the *R. alba*, Linn. a native of Germany.
6. *Sweet Briar*, or *Eglantine Roses*, are varieties obtained from the *R. rubiginosa*, Linn.
7. *Chinese Roses* are varieties obtained from the *R. indica*, Linn. and the monthly or ever blowing roses from *R. semperflorens*, Curt. both natives of China.

Besides those varieties which may be traced to the species under these different heads, are a considerable number of others, which have been so intermixed with each other, as to render it impossible to trace out from which they originated; many of them extremely ornamental to our gardens and shrubberies.



797

Rosa Dicksoni.



798

Rosa rubella



799

Rosa spinosissima.



800

Rosa hibernica



801

Rosa involuta.



802

Rosa Sabini.

The Rose, from our earliest records, seems to have been an esteemed and useful plant. According to the account of Pliny, the unguents used to anoint the body after bathing at the time of the Trojan war were commonly oil perfumed with odoriferous herbs, and especially Roses; and Homer in his twenty-third *Illiad*, where Venus anoints the body of Hector, mentions the ointment as *oil mixed with roses*; and speaking of Juno, he says—

“ First she laved all o'er
Her beauteous body with ambrosial lymph,
Then polished it with richest oil divine,
Of boundless fragrance.” *Cowper.*

It was a custom amongst the ancients to bedeck the tombs of the dead with various flowers, amongst which the Rose appears to have been one of their favourites.

“ And after death its odours shed
A pleasing fragrance o'er the dead.”
Broome, Anacreon Ode, 53.

Æneas, when celebrating the anniversary of his father Anchises' death, is thus represented by Virgil after he “and all the Trojan race” had bound their brows with myrtle—

“ Æneas then advanc'd amidst the train,
By thousands follow'd through the flow'ry plain,
To great Anchises' tomb; which, when he found,
He pour'd to Bacchus, on the hallow'd ground,
Two bowls of sparkling wine, of milk two more,
And two (from offer'd bulls) of purple gore.
With *Roses* then the sepulchre he strew'd,
And thus his father's ghost bespoke aloud.”

Dryden's Virgil, Book 5. 98.

Roses and other flowers were sometimes formed into chaplets, as the symbol of distinction:—

“ 'Twas at the royal feast for Persia won,
By Philip's warlike son,
Aloft in awful state
The godlike hero sat
On his imperial throne:
His valiant peers were placed around
Their brows with *Roses* and with *Myrtles* bound,
(So should desert in arms be crown'd.)”

Dryden.

From the account of Pliny, it appears *Roses* were much esteemed and considerably cultivated by the Romans. He mentions several sorts of those which are fragrant, and others that are not; and he gives some hints as to the nature of the soil best suited for them, and the mode of their cultivation: but now the Rose is so universal a favourite, that every garden, whether attached to the humble cottage or to the palace, has one or more species to adorn it. The shrub is variable in size, from a few inches to twelve or more feet high; the colour of its flowers

are red, to every shade of pink or purple, yellow and white, or striped, and they are single, semi-double, or double. Their medicinal properties are slightly tonic and astringent; but as a perfume, it has already been observed, they have been esteemed from the earliest recorded periods. The petals of the *R. centifolia* are mostly used for the making of Rose water, and for procuring attar; six pounds weight of the petals, distilled with water, will strongly impregnate a gallon with its odour, and between two and three hundred pounds are required to make, by the same process, an ounce of the attar. They are not cultivated for these purposes in England, as the attar can be procured at a much cheaper rate from Tunis, Alexandria, or Constantinople, where Roses are cultivated for this purpose to a very considerable extent. The cultivation of the Rose, for the most part, is not difficult, whether to bloom them, propagate their species, or procure varieties from seeds; but for information on these heads we must refer the reader to the numerous excellent publications illustrative of this genus; and to the various Horticultural periodicals which give ample instructions for their cultivation, &c.

2. *PIMPINELLI'FOLIE*, Lind. *Branches setigerous. Prickles slender, straight, or slightly curved, unequal, sometimes unarmed. Flowers with small or without bractea, mostly solitary. Leaflets mostly ovate. Calyx segments converging, not separating from the fruit. Disk very thin.*

2. *R. rubell'a*, Sm. (Fig. 798.) *Red Fruited Dwarf Rose. Stem and branches densely setigerous; prickles slender, nearly straight; leaflets simply serrated, naked, without glands; fruit oblong, urceolate, pendulous.*

English Botany, t. 2521.—English Flora, vol. ii. p. 375.—Hooker, British Flora, ed. 3. p. 228.—Lindley, Synopsis, p. 99.—*R. alpina*, 6. *rubella*, Ser. MSS.—De Cand. Prod. 2. p. 612.

Root with creeping suckers. *Shrub*, from two to four feet high, with round spreading much divided branches, copiously clothed with *setæ*, with a few slender straight or slightly deflexed prickles scattered amongst them. *Leaves* smooth, with a few glands, *setæ*, and sometimes slender prickles, scattered upon the footstalk, petioles, and mid-ribs. *Leaflets* from seven to eleven, dark green above, paler beneath, roundish or elliptic, obtuse, with simple acute rarely gashed serratures, mostly tipped when young with glands. *Stipules* mostly wider, and spreading at the points, the margin fringed with glands. *Flowers* solitary, rarely two together. *Peduncles* sometimes with a small *bractea*, rough, with more or less crowded *setæ*, as well as the *calyx* tube, with its simple segments shorter than the petals, often dilated at the points, and more or less setose, downy within. *Petals* five, spreading, concave, cream coloured, pale pink, often blotched with crimson externally, and by cultivation its varieties are sometimes entirely so. *Stigmas* prominent, hairy. *Fruit* ovate, tapering at each end, of a

bright red colour, firm, smooth, to the base only with a few bristles upon it. *Calyx* segments persistent, spreading, attached to a prominent fleshy ring, peduncle thickened and coloured with the fruit.

Habitat.—Rare on the sandy sea coast of Northumberland.—*Mr. Winch*. Banks of the Dee, about Abergeldy.—*Anderson*.

Shrub; flowering in July.

This species is nearly allied to *R. alpina*, Linn., to which it is united by De Candolle. It differs from it in the more oval-shaped fruit, and the larger and more numerous prickles, and setæ, which are rarely found on *R. alpina*.

3. *R. spinosissima*, Linn. (Fig. 799.) *Burnet-leaved Rose*. Prickles crowded, slender, straight, unequal, intermixed with setæ; leaflets small, flat, smooth, simply serrated; calyx simple; fruit globose, erect, black.

English Botany, t. 187.—English Flora, vol. ii. p. 376.—Hooker, British Flora, ed. 3. vol. i. p. 229.—Lindley, Synopsis, p. 100.—*R. pimpinellifolia*, Linn.—*α. vulgaris*, Ser. MSS. De Cand. Prod. 2. p. 608.

β. pilosa, Lind. "Very dwarf, leaves acute, hairy on the under surface." Lindley, Synopsis, p. 100.

Root with long creeping suckers. *Shrub* from six inches to three and four feet high, branches numerous, much divided, rigid, spreading. *Prickles* mostly very numerous, crowded, slender, the larger ones often dilated at the base, and slightly curved, usually they are straight, very unequal in size, diminishing into bristles, the lower branches are often naked, and sometimes, but rarely, the upper also. *Leaves* generally very numerous, the common footstalk smooth, or with a few prickles upon it. *Leaflets* small, flat, leathery, dull green above, paler beneath, quite smooth, without glands, or hairy on the under surface, of an orbicular obtuse, or ovate and acute shape, the margin simply, sometimes very finely doubly serrated and irregular. *Stipules* narrow, with dilated spreading points, the margins with a glandular fringe. *Flowers* numerous, solitary, terminal. *Peduncles* gradually thickening upwards, and becoming coloured with the fruit, smooth, glandulous, or sometimes bristly or prickly. *Calyx* with a globose tube, and simple tapering segments, more or less fringed with glandular teeth, and sometimes with short pinnæ, or dilated at the point. *Petals* of a pale cream colour, yellowish at the base, and blotched or striped with pink, externally, more rarely altogether pink. *Stigmas* mixed with hairs, pale or pink, prominent, or depressed. *Fruit* very variable in size, globose, ovate, obovate, or more rarely urceolate, and though generally of dark purple almost black colour, it is not unfrequently of a blood red, firm when ripe with a sweet pleasant taste, crowned with a thickened ring, and the erect or somewhat spreading calyx segments, often thickened at the base.

Habitat.—Heaths and waste places, especially in a sandy or chalky district.—*β. pilosa*, Ireland, Lindley.

Shrub; flowering in May and June.

It is from this species that the great variety of the Burnet or Scotch Roses of our gardens is obtained. It varies very greatly in the size of the shrub, the fragrance of the flowers, and the shape of the leaves; this, however, does not alter the appearance for which it is distinguished, as resembling the leaves of the Burnet. It may have been the delicacy of this pretty simple Rose, with its very spiny branches, which suggested to the mind of Ariosto the following lines:—

La virginella é simile alla rosa,
Ch' in bel giardin, sulla nativa spina,
Mentre sola e sicura si riposa,
Nè gregge nè pastor se le avvicina;
L' aura soave e l' alba rugiadosa,
L' acqua, e la terra al suo favor s'inclina:
Giovani vaghi, e donne innamorate,
Amano averne e seni e tempie ornate.

Ma non si tosto dal materno stelo
Rimossa viene, e dal suo ceppo verde,
Che quanto avea dagli uomini e dal cielo
Favor, grazia e bellezza, tutto perde.
La vergine che il candor, di che più zelo,
Che de' begli occhi e della vita aver de',
Pregiar non mostra; il pregio ch' avea innante
Perde nel core d' ogni saggio amante.

L' Orlando Furioso, Cant. 1. v. 42 and 43.

4. *R. Hiber'nica*, Sm. (Fig. 800.) *Irish Rose*. Prickles unequal, scattered, slightly curved, intermixed with but few setæ; leaflets ovate, acute, simply serrated, hairy beneath; calyx segments pinnate, reflexed; flowers with bractea; fruit smooth, nearly globular.

English Botany, t. 2196.—English Flora, vol. ii. p. 394.—Hooker, British Flora, ed. 3. vol. i. p. 230.—Lindley, Synopsis, p. 100.—*R. canina*, Linn.—De Cand. Prod. 2. p. 613.

Root with creeping suckers. *Shrub* from three to six feet high, forming a dense much branched bush, with reddish brown bark. *Prickles* not very numerous, scattered, the larger ones slightly curved, the smaller slender ones straight, and intermixed with a few setæ. *Leaves* with the common footstalk hairy, with or without a few slender hooked prickles, and rarely any setæ or glands, leaflets crowded, from five to nine, roundish ovate, acute, smooth, and somewhat glaucous above, or scattered over with a few fine hairs, paler beneath, and the ribs hairy, the margin with simple rarely double or unequal serratures. *Stipules* broad, with spreading points, smooth, with slightly serrated margins. *Flowers* rather small, of a pale pink colour, solitary, or two or more together, and are then accompanied with ovate lanceolate bractea, with slightly serrated margins. *Peduncles* cylindrical, smooth, as well as the calyx tube, which has its segments

shorter than the petals, pinnated, with entire pinnae, smooth externally, downy within and on the margins. *Stigmas* somewhat prominent. *Fruit* smooth, almost globular, or urceolate, of a blood red or orange colour, crowned with the erect or spreading persistent calyx segments.

Habitat.—Hedges; Counties of Derry and Down, near the shore; Hollywood, Belfast harbour.

Shrub; flowering from June to October.

A satisfactorily distinct species, according to Mr. Borrer, and intermediate in habit and in the size of its leaves between *R. spinosissima* and *R. collina*, β . *Woods*; but in its fruit and in the presence of setae nearer to the former. A variety is mentioned in the Flora Hibernica, which has the leaves smooth on both sides, and appears to have been produced by having been grown on an exposed rocky situation.

5. *R. involuta*, Sm. (Fig. 801.) *Prickly unexpanded Rose*. Prickles unequal, crowded, intermixed with setae; leaflets doubly serrated, downy, glandulose beneath; petals rolled inwards; calyx segments simple; fruit setose; stem dwarfish.

English Botany, t. 2068, and fruit t. 2601, fig. 2.—English Flora, vol. ii. p. 378.—Hooker, British Flora, ed. 3. vol. i. p. 231.—*R. pimpinellifolia*.— π . *involuta*, Ser. MSS.—De Cand. Prod. 2. p. 609.

Root with wide spreading suckers. *Shrub* about three feet high, with upright spreading branches. *Prickles* numerous, crowded, thin, slender, awl-shaped, very unequal, and mixed with setae. *Leaves* numerous, with the common footstalk bearing a few straight prickles, and hairy, intermixed with glands. *Leaflets* five to nine, broadly elliptic, nearly smooth above, but hairy and glandulose on the veins and ribs beneath, the margins doubly and sharply serrated. *Flowers* mostly solitary, with the *peduncles* slightly thickened upwards, and clothed like the calyx tube with numerous setae. *Calyx* with the segments simple, dilated at the point, or sometimes with one or two small pinnae, and more or less glandular. *Petals* pale pink, often deeper towards the margin, concave, and but little longer than the calyx segments, seldom more than half expanded. *Stigmas* protruded. *Fruit* globose, or somewhat urceolate, of a dark red colour, setose, crowned by the persistent calyx segments, attached to the thickened base.

Habitat.—Hebrides and Western Highlands of Scotland. Near Meggarnie, in Glen Lyon.—*Rev. Dr. Stuart*. Isle of Arran.—*Mr. G. Don*. Glengarriff, County of Cork (?).—*Mr. J. Drummond*.

Shrub; flowering in June.

This species is intermediate between *R. spinosissima* and the following, *R. Sabini*. From the former it is distinguished by its doubly serrated glandulous leaves and bristly fruit; and from the latter by its dwarfish growth and more crowded prickly branches.

6. *R. Sabini*, Woods. (Fig. 802.) *Sabine's Rose*. Prickles straight, or nearly so, unequal, scattered; setae few; leaflets doubly serrated, hairy, glandulous beneath; calyx with slightly pinnated segments.

English Botany, Supp. t. 2594.—English Flora, vol. ii. p. 381.—Hooker, British Flora, ed. 3. vol. i. p. 232.—Lindley, Synopsis, p. 100.

β. Doniana, Lind. Prickles more numerous, nearly straight; setæ very few; leaves very hairy; calyx almost simple.

Lindley, Synopsis, p. 100.—Hooker, British Flora, ed. 3. vol. i. p. 232.—*R. Doniana*, Woods.—English Botany, Supp. t. 2601.—English Flora, vol. ii. p. 379.

γ. gracilis. Prickles fewer, the larger ones hooked, calyx almost simple.—*R. gracilis*, Woods.—English Flora, vol. ii. p. 380.—*R. villosa*.—English Botany, t. 583, (not the fruit).

Root with creeping suckers. *Shrub* from five to eight or ten feet high, erect, with spreading somewhat drooping much divided branches, with reddish brown coloured bark. *Prickles* numerous on the stem, few, and scattered on the branches, very unequal in size, and with but few setæ amongst them; they are all nearly straight in *α.* and *β.*; but in *γ.* the larger ones are much more curved than the smaller. *Leaves* numerous, with the common footstalk having a few slender straight prickles, and setæ also hairy and glandulose. *Leaflets* from seven to nine, elliptic, or ovate, with an acute point, the margins sharply and acutely doubly serrated, more or less hairy above, paler and more hairy beneath, the margins, ribs, and veins scattered over with a greater or less number of glands. *Stipules* pale, dilated upwards and spreading at the point. *Flowers* solitary, or two or three together in bunches. *Peduncles* equal, more or less setose, as well as the calyx tube, and accompanied with one or two serrated bractea, hairy and glandulous on the margins and ribs. *Calyx* segments copiously pinnated, mostly with a long dilated leafy point, rarely simple, hairy, setose, and glandulous. *Petals* longer than the calyx segments, varying in colour from pink to white, often mottled or striped. *Stigmas* more or less protruded. *Fruit* globose, or somewhat urceolate, of a fine dark red colour, crowned by the persistent calyx segments, and more or less scattered over with setæ.

Habitat.—North of England and Scotland, and Umbra rocks, Magilligan, Ireland, with the following var. *β.* Sussex, Warwickshire, and near Edinburgh.—*γ.* near Darlington.—*Mr. Robson*. At Pooley Bridge, Cumberland, as well as between Keswick and Lorton.—*Mr. Wood*. Bennedy Glen, near Dungiven, Ireland.—*Mr. D. Moore*.

Shrub; flowering in June.

Such are the difficulties in discriminating the species of this genus, that Professor Lindley, who, by his monograph, has done more to elucidate the Rose than any other Botanist, asks of the above species, "Can this be, after all, a production of *R. tomentosa mollis*?"

3. *VILLOSA*. Branches without setæ. Prickles nearly straight, equal. Leaflets with diverging serratures, and glandulous. Calyx segments persistent. Disk thick, closing up the mouth of the tube.



803 *Rosa tomentosa.*



804 *Rosa villosa.*



805 *Rosa Wilsoni.*



806 *Rosa inodora.*



807 *Rosa mianantha.*



808 *Rosa rubiginosa.*

7. *R. tomento'sa*, Sm. (Fig. 803.) *Downy-leaved Rose*. Root shoots curved; prickles scattered, uniform; leaflets ovate, acute, downy, doubly serrated, glandulose; fruit setose, or smooth; calyx segments copiously pinnate.

English Botany, t. 990.—English Flora, vol. ii. p. 384.—Hooker, British Flora, ed. 3. vol. i. p. 234.—Lindley, Synopsis, p. 100.

β. fœtida, Lind. Leaves nearly smooth on the upper side.

Lindley, Synopsis, p. 100.—*R. fœtida*, Batard.—*R. Scabrius cubia*.—English Botany, t. 1896.—*β.* English Flora, vol. ii. p. 384.

Root with creeping suckers. *Shrub* from six to eight feet high, branched and spreading, the shoots erect and straight, or curved, the bark of a somewhat glaucous green. *Prickles* not very numerous, straight, or slightly hooked, equal, prickles often in pairs beneath the leaves, or scattered singly, and without any *seta* amongst them. *Leaves* numerous, the common footstalk downy, scattered over with a few glands, downy, and sometimes having a few short bristles scattered upon it. *Leaflets* from five to seven, clothed with downy pubescence, the upper side sometimes, though rarely, quite smooth, and more or less scattered over with glands, paler beneath, and when bruised has a turpentine smell, of an elliptic oblong or ovate obtuse or acute point, the margins with compound spreading serratures, mostly regular, though often cut at the ends in those which are obtuse. *Stipules* pale, often narrow, concave, with dilated spreading points and glandular fringed margins. *Flowers* solitary, or three or four together, on short smooth or bristly stalks. *Bractæas* ovate or oblong, downy, and sometimes glandular. *Calyx* with a round ovate or oblong tube, bristly, rarely smooth, and of a dark purplish glaucous green, the segments long, very compound, with narrow linear serrated pinnæ, downy, glandulose, and bristly at the base. *Petals* obcordate, concave, pink or white, sometimes white, with red patches. *Disk* thick, fleshy. *Styles* with prominent downy stigmas. *Fruit* roundish, obovate, or ovate, depressed, of a deep scarlet colour, bristly, crowned by the persistent converging calyx segments, until the fruit is ripe, when they usually fall away, soft and pulpy, with a pleasant acid flavour.

Habitat.—Woods and hedges, frequent; *β.* near Newcastle.

Shrub; flowering in June and July.

This is an extremely variable plant, which becomes more or less thickly clothed with pubescence, and bearing a greater or less number of prickles, according to the situation of its growth, and the nature of the soil in which it has grown. In the less pubescent varieties, with arched shoots, it approaches *R. canina*, and those with the calyx segments less divided than is usual. It is sometimes difficult to distinguish them from *R. villosa*.

It is one of the more common species of our Roses,—flowers which add so much beauty to the rural lanes and woods, whence the lover of Nature's works derives such rich stores of enjoyment

"Along the sunny bank or watery mead,
 Ten thousand stalks the various blossoms spread :
 Peaceful and lonely in their native soil,
 They neither know to spin nor care to toil ;
 Yet with confess'd magnificence deride,
 Our vile attire and impotence of pride.
 The Cowslip smiles in brighter yellow dress'd,
 Than that which veils the nubile virgin's breast.
 A fairer red stands blushing in the Rose,
 Than that which in the bridegroom's vestment flows."

Prior.

8. *R. villosa*, Linn. (Fig. 804.) *Villous Rose*. Root shoots erect, coloured; prickles nearly straight, uniform; leaflets ovate, downy, glandulous, doubly serrated; fruit ovate, drooping, setose, or smooth; calyx segments scarcely pinnated.

English Flora, vol. ii. p. 382.—Hooker, British Flora, ed. 3. vol. i. p. 232.—*R. mollis*, Linn.—English Botany, t. 2459.—Lindley, Synopsis, p. 100.—*R. mollissima*, Willd.

Root with creeping suckers. Shrub from six to eight feet high, with erect not arched shoots, much branched in an irregular manner, the bark varying in colour from grey to purple, often marked in coloured patches. Prickles few, scattered, straight, slender, or slightly curved, mostly in pairs beneath the leaf, or scattered singly on the stem, without any *setæ* amongst them. Leaves mostly numerous, the common footstalk downy and glandulose, with a few very slender pale prickles on the under side. Leaflets five to seven, ovate or elliptic, obtuse, or acute at the point, downy, especially beneath, and more or less scattered over with glands, often grey with down paler beneath, the margins, with spreading mostly regular serratures, the secondary ones very small, fringed with glands. Stipules thin, pale, concave, downy and glandular, the points spreading. Flowers from one to three or four, sometimes very numerous, the peduncles short, and as well as the calyx tube greyish green, sometimes purplish, more or less thickly clothed with bristles, rarely naked, the calyx segments downy, glandulous, and bristly at the base, sometimes simple, pinnated, but rarely leafy. Petals obcordate, concave, rather longer than the calyx segments, of a deep pink colour, sometimes white, and at others white, with pink patches. Disk fleshy. Styles with prominent downy stigmas. Fruit elliptical, or globose, of a purplish red or crimson colour, with a grey bloom upon it, bristly, and mostly pendulous, pulpy when ripe.

Habitat.—North of England, Scotland, Wales, and Ireland; not uncommon.

Shrub; flowering in June and July.

Many of the varieties of this plant are so nearly allied to *R. tomentosa*, that it is difficult to know to which species they belong; and we are not sure if it would not be better to unite them together, as is done

by Koch in his *Synopsis Floræ Germanicæ et Helveticæ*, to which he also adds *R. scabriuscula*, *R. heterophylla*, *R. pulchella* of Woods, the *R. mollis* and *R. subglobosa*, Smith; and we think the *R. sylvestris*, Lind. Synopsis, may be placed amongst them.

9. *R. Wilso'ni*, Borr. (Fig. 805.) *Wilson's Rose*. "Prickles crowded, unequal, straight, intermixed with setæ; leaflets simply serrated, hairy, their disk eglandulous; calyx simple; fruit ovato-urceolate."

Borrer in English Botany, Supp. t. 2725.—Hooker, British Flora, ed. 3. v. i. p. 231.

"About three feet high, of slender habit, well furnished with very unequal straight prickles and glandular setæ. *Leaflets* seven or nine, five towards the flowers, ovate, somewhat cordate, blunt, (not acuminate), simply serrated, slightly hairy on both sides, the ribs beneath rather more so, the mid-rib beset with glands, like the petiole, which bears also a few small prickles, which are often falcate, or almost uncinat *stipules*, copiously fringed with glands, widened upwards, pointed, and somewhat divaricating. *Flowers* usually three together, bracteate, the primordial bractea a pair of enlarged stipules, with a terminal leaflet, the others simple, ovate or lanceolate, acute. *Peduncles* setose. *Calyx* tube broadly ovate, (almost globular), with a short neck, sparingly setose, sometimes naked; segments persistent, copiously setose, and glandulous, shorter than the petals, with a slightly dilated point, and occasionally a capillary pinnæ. *Petals* rather large, pink. *Styles* included, hairy. *Stigmas* forming a round protuberant mass. *Fruit* scarlet."

Habitat.—On a declivity by the Menai, near Bangor, Mr. W. Wilson. Shrub; flowering in June and July.

This plant we only know from cultivated specimens, and though they in almost every particular agree with the description given of them, we have still thought it better to give the description of Mr. Borrer, from Hooker's British Flora, ed. 3, where he further observes—"In describing this remarkable Rose, which I have never seen growing, I have availed myself of the remarks of its accurate discoverer."—(Mr. W. Wilson). He observes further that "it is as plentifully supplied with prickles as *R. spinosissima*, and that the foliage soon acquires a reddish tinge, which gives to the bush a remarkable and somewhat elegant aspect. On the flowering twigs I find the prickles scattered, small, slightly curved, and richly tinged like the twigs themselves and the flower stalks and calyx, with purple." Lindley, in the second edition of his Synopsis, page 323, remarks that "This seems one of the endless varieties of *R. mollis* (*R. villosa*), approaching *Doniana* (*R. Sabini*, β . *Doniana*), in the presence of setæ on its branches, and proving among other things that *R. involuta*, *Doniana*, *Sabiniana*, &c., are all one and the same natural species."

4. RUBIGINOSÆ. *Prickles very unequal, sometimes like bristles, very rarely absent. Leaflets ovate or oblong, usually fragrant and*

glandular; serratures diverging. Calyx segments persistent. Disk thick, closing up the mouth of the tube.

10. *R. inodo'ra*, Fries. (Fig. 806.) *Slightly-scented Briar*. Prickles much hooked, nearly equal; leaflets oblong, doubly serrated, mostly hairy and glandulous beneath; calyx segments very compound, deciduous before the fruit is ripe; fruit oblong, or nearly globular, smooth, as well as the peduncles.

Fries. Nov. Fl. Suec. De Cand. Prod. 2. p. 617.—English Botany, Supp. t. 2610, foot of page.—Hooker, British Flora, ed. 3. p. 235.—*R. Borreri*, Woods.—English Flora, vol. ii. p. 389.—*R. dumetorum*.—English Botany, t. 2579.—*R. rubiginosa*, δ . *inodora*.—Lindley, Synopsis, p. 101.

β . "Leaves hairy on both sides."—Woods. Hooker, British Flora, ed. 3. p. 236.

γ . "Leaves more copiously glandulous; calyx segments elongated, persistent."—Hooker, British Flora, ed. 3. p. 236.

Root with short creeping suckers. *Shrub* from six to eight feet high, with stout arched drooping branches. *Prickles* mostly scattered, strongly hooked and dilated at the base, flowering branches frequently unarmed. *Leaves* with the common footstalk downy and glandulous, and a few small prickles. *Leaflets* five to seven, ovate, scarcely acuminate, dark shining green above, paler and more hairy beneath, and mostly scattered over with a few small glands, which give it a slight turpentine scent, the margin doubly serrated. *Stipules* narrow, with a slightly serrated glandular margin. *Flowers* solitary, or three or many together in a bunch. *Peduncles* short, bristly, hairy, or more rarely naked. *Bracteas* ovate, pointed, bristly, hairy or naked. *Calyx* with the tube mostly naked, its segments about as long as the petals, simply, rarely compoundly pinnated, and fringed with glandular teeth. *Petals* rather small, pale pink. *Stigmas* depressed. *Fruit* ovate, or nearly globular, smooth scarlet, soft and pulpy when ripe, and with the same agreeable acidity as *R. Canina*.

Habitat.—Hedges, thickets, &c., especially in the South of England. County of Dublin, Ireland. β . "near Edinburgh, and elsewhere; γ . Gen Goy, Inverness-shire; near Newcastle.—Mr. Robertson."

Shrub; flowering in June and July.

11. *R. micran'tha*, Smith. (Fig. 807.) *Small-flowered Sweet Briar*. "Prickles uniform, uncinate; leaflets doubly serrated, hairy, glandulous beneath; calyx segments and pinnæ elongated, deciduous; fruit small, elliptical, and ovate; ramuli sparingly setigerous."

English Botany, t. 2490.—English Flora, vol. ii. p. 388.—Hooker, British Flora, ed. 3. vol. i. p. 236.—*R. rubiginosa*, Linn. var. *micrantha*.—Lindley, Synopsis, p. 101.—De Cand. Prod. 2. p. 617.

"Scarcely stoloniferous, five to eight feet high, of loose straggling growth, with arched shoots and spreading branches. *Prickles* strongly hooked, not numerous, nor intermixed with straight subulate ones, but

a few strictly setaceous, and a few real *setæ* often occur immediately under the inflorescence; occasionally the flowering ramuli, and sometimes the points of leafy shoots, are altogether unarmed. *Leaflets* broadly elliptical or ovate, of a rather pale green, and somewhat shining and slightly hairy above; beneath more hairy, and sprinkled copiously, as are the *petioles*, and usually the *stipules*, with rusty glands, diffusing a fragrance similar to that of the *Sweet Briar*, but less powerful, and sometimes, according to Woods, intermixed with a turpentine odour. *Peduncles* setose. *Calyx* tube naked, or with a few *setæ*, those at its base not in general larger than the others, its segments with a long leafy point, and narrow lanceolate pinnae, fringed with gland-pointed teeth. *Petals* small, shorter than the calyx, pale pink. *Styles* included, not hairy. *Stigmas* slightly protuberant. *Fruit* coral red, or scarlet, pulpy when ripe, and flavoured like that of *R. canina*, the primordial bluntly elliptical, never pear-shaped, the secondary ovate, with a slight neck, often somewhat oblique."

Habitat.—Open bushy commons, thickets, and hedges, especially in the South of England; near Cork, Ireland.—*Mr. Drummond*.

Shrub; flowering in June and July.

We must confess that we are incapable of distinguishing this as a species from *R. rubiginosa*; but Mr. Borrer's authority is deserving the greatest consideration: we have, therefore, thought it best to give his own description, as given in the British Flora, where he also adds that "It is difficult to distinguish this plant satisfactorily by characters from *R. inodora*; yet it differs considerably in habit, its ramifications being more tufted, although it sends out long arched shoots, and also in its lengthened calyx segments and its small fruit;" and he further observes, "It is, in fact, more likely to be united to *R. rubiginosa* by Botanists who separate these two, yet deny to this the rank of a species. The justice of its claim to such rank we are far from asserting positively; yet its uniform and much less numerous prickles, its small pulpy fruits all rounded at the base, and its deciduous calyx segments, seem constant characters; and its smaller pale flowers, and arched straggling shoots, distinguish it from *R. rubiginosa* at first sight."

The flowers are of an extremely beautiful pale colour, and exhale a very delicate fragrance, much more so than that from the leaves; but the difference in the secretions of the leaves and flowers is not so remarkable in this as some other species, that of the leaves having a turpentine odour, while from the flower the fragrance is most pleasant. Many other plants besides the Roses furnish us with perhaps much more striking differences in their secretions on a superficial examination; but this may be sufficient to excite the further investigation of the student into the inquiry as to by what means, and why are these secretions different in one part of the plant than another; and he will find they are almost as various as those of the animal creation, but the powers of that Being who created them is perhaps in plants more won-

derfully displayed, for here from the same plot of earth numberless plants derive their nutriment; but by their own unassisted power they produce qualities as opposite as can be imagined, one with a most delicious fragrance, another exhaling most foetid odours, one with all its qualities bland and mild, and loaded with nutriment; while its companion can only add pain and sorrow to almost all animals that partake of it! But, as Wordsworth says—

“ By contemplating these forms
In the relations which they bear to man,
He shall discern how through the various means
Which silently they yield, are multiplied
The spiritual presence of absent things.
Trust me that for the instructed time will come
When they shall meet no object but may teach
Some acceptable lesson to their minds,
Of human suffering or of human joy.”

12. *R. rubigino'sa*, Linn. (Fig. 808.) *True Sweet Briar*. Prickles large, numerous, much hooked, and strongly compressed; leaflets roundish ovate, doubly serrated, rugose, and rough with glands, especially on the margins and under side; calyx segments and pinnæ elongated, persistent; fruit elliptical, rough, as well as the peduncles, with bristles.

English Botany, t. 991.—English Flora, vol. ii. p. 386.—Hooker, British Flora, ed. 3. vol. i. p. 237.—Lindley, Synopsis, p. 101.—De Cand. Prod. 2. p. 615.—*R. Eglanteria*, Woods.—Hudson.

Root with short suckers. *Shrub* from four to six feet high, mostly much branched, forming a compact bush, the bark of a bright green. *Prickles* numerous, strong, compressed, dilated at the base, unequal, the larger ones much hooked, the smaller much less so, and often mixed with these are small bristle-shaped ones, and not unfrequently *sela*. *Leaves* with the common footstalk clothed with short glandular pubescence, and furnished with a few slender prickles. *Leaflets* from five to seven, ovate, roundish ovate, sometimes narrower, with an acute point, of a pale brighuish green, the margins mostly doubly serrated, clothed with short pubescence and glands, especially on the margin and under side. *Stipules* pale, thin, sometimes serrated, very glandular on the margin. *Flowers* from one to three together, concave. *Bracteas* pale, thin, lanceolate, acute, concave, somewhat hairy and glandular. *Peduncles* and *calyx* mostly bristly, segments of the calyx elongated, narrow, reflexed, and as well as the pinnæ, in general copiously clothed and fringed with glandular hairs. *Petals* obcordate, deep pink, the *disk* thickened. *Styles* slightly hairy. *Stigmas* scarcely protuberant. *Fruit* at first yellow, becoming orange red, and at length scarlet, oblong or obovate, bristly, or smooth, crowned by the persistent calyx segments, when ripe scarcely pulpy, and with but little taste.

Habitat.—Hedges and bushy places, especially in the South of



809

Rosa sepium.



810

Rosa canina.



811

Rosa bracteata.



812

Rosa cæsia.



813

Rosa systyla.



814

Rosa arvensis.

England; about Edinburgh, Scotland; and near Passage, Belfast, and by the side of the river Roe, near Newtown-limavady, Ireland.

Shrub; flowering in June and July.

The leaves of the Sweet Briar have a fragrance, which is compared to the odour of ripe apples, but is much more delicate. This secretion arises chiefly from the glands, with which the leaves are so abundantly supplied. It is from this circumstance that it is so much esteemed, and the cottage gardener scarcely considers his stock of shrubs or garden hedge complete without one or more plants of the Sweet Briar.

13. *R. sepium*, Thuil. (Fig. 809.) *Small-leaved Sweet Briar*. "Prickles numerous, larger curved, smaller subulate; leaflets small, doubly serrated, hairy, acute at each end, glandulous beneath; calyx segments and pinnæ elongated; (fruit ovate?)"

Hooker, British Flora, ed. 3. vol. i. p. 238.—English Botany, Supp. t. 2653.—Lindley, Synopsis, p. 101.—*R. rubiginosa*, *o. sepium*.—De Cand. Prod. 2. p. 617.

"A densely branched bush, about three feet high, distinguished in the common French plant by long slender flexuous twigs, with large nearly straight, or falcate, or even uncinatè *prickles*, and small distant lanceolate *leaflets*, mostly seven, acute, (mostly, but not invariably,) at the base as well as the point. The petioles are glandulous, sometimes hairy, and bear a few straightish or curved *prickles*. The *peduncles* and calyx tube are usually naked, but occasionally both, or the former only, bear setæ, which are larger on the base of the tube, although less remarkable than in *R. rubiginosa*. The calyx segments are variously glandulous, and the narrowly lanceolate pinnæ issue more or less exactly at right angles, and have little sharp divaricated gland-tipped teeth. The *styles* are included, and very slightly hairy.—In Mr. Bree's plant, which I have seen only under cultivation, I find but little difference, except that the ramuli are less flexuous, and the leaflets not remarkably distant, rather larger, and more hairy, almost shaggy beneath. The pinnæ of the calyx are less divaricated, and have glands on the edges only, (as they have in a specimen gathered by Mr. Woods, at Troyes, which also has larger leaflets). The *flowers* are white, clustered or solitary, according, as usual, to their situation on the bush. The fruit is scarlet, ovate (rounded at the base) when solitary; I have no note of its shape in the bunches. The *prickles*, which have a few setæ among them, are numerous, the larger ones strongly hooked."

Habitat.—Near Bridport, Warwickshire.—*Rev. W. T. Bree*.

Shrub; flowering in June.

The above description by Mr. Borrer of this doubtful species of Rose we have taken from the British Flora, as we are unacquainted with native plants in a living state.

5. *CANI'NÆ*. Prickles equal, hooked. Leaflets ovate, the serratures converging. Calyx segments deciduous before the fruit is ripe. Disk thick, closing up the mouth of the tube.

14. *R. cani'na*, Linn. (Fig. 810.) Common Dog Rose. Prickles equal, hooked, much compressed; leaves sub-coriaceous, smooth, or slightly hairy, acute, and often doubly serrated; calyx segments pinnate, deciduous; shoots assurgent.

Hooker, British Flora, ed. 3. vol. i. p. 234.—Lindley, Synopsis, p. 101.

α. Leaflets smooth, carinated; serratures simple.

Hooker, British Flora, ed. 3. vol. i. p. 239.—*R. canina*.—English Botany, t. 992.—English Flora, vol. ii. p. 395.

β. *sarmentacea*, Borr. Leaflets smooth, carinated; serratures compound.

Hooker, British Flora, ed. 3. vol. i. p. 239.—Lindley, Synopsis, p. 101.—*R. sarmentacea*, Woods.—English Botany, Supp. t. 2595.—English Flora, vol. ii. p. 391.

γ. *surculosa*, Borr. Leaflets smooth, flat; serratures simple.

Hooker, British Flora, ed. 3. vol. i. p. 239.—*R. surculosa*, Woods.—*R. canina*, *β*.—English Flora, vol. ii. p. 395.

δ. *dumetorum*, Borr. Leaflets more or less hairy, flat.

Hooker, British Flora, ed. 3. vol. i. p. 239.—*R. dumetorum*, Thuil.—English Flora, vol. ii. p. 393.—English Botany, Supp. t. 2610.

ε. *Forsteri*, Borr. Leaflets more or less hairy, not flat.

Hooker, British Flora, ed. 3. vol. i. p. 339.—*R. collina*, Woods.—Lindley, Synopsis, p. 102.—*R. Forsteri*, Sm.—English Flora, vol. ii. p. 393.—English Botany, Supp. 2611.

Root with creeping suckers. Shrub more or less straggling, from six to eight feet high, the branches more or less divided, and the shoots erect, or more or less arched, the bark a bright green, reddish brown on that side towards the sun. Prickles are not generally numerous, more or less hooked, much compressed, and greatly dilated at the base, stout. Leaves with the common footstalk smooth, rarely hairy or glandulous, but generally with a few straight or hooked slender small prickles on the under side. Stipules pale, thin, dilated, reflexed, with a spreading acute point, and generally slightly serrated on the margin, sometimes fringed with a few glands. Leaflets ovate, ovate lanceolate, or oblong, acute, or rounded at the point, nearly sessile, pale or darkish green above, pale and sometimes glaucous beneath, often tinged with red in exposed situations, quite free from pubescence, or slightly scattered over with hairs, rarely glandulous, flat or concave, and carinated at the back, the margins simply, doubly, or irregularly serrated with acute converging teeth. Flowers solitary, or numerous, in cymose bunches. Bracteas lanceolate, or ovate lanceolate, with a tapering point, thin, pale, concave, or flattish, toothed and glandular on the margin, or entire. Petioles and tube of the calyx smooth, sometimes

a few slender hairs are scattered over them; the *calyx segments* reflexed, pinnated, with narrow elongated simple or toothed *pinnae*, smooth or glandulous, clothed with a soft down within, and on the margins. *Petals* broadly obcordate, white, or of a more or less deep pink. *Disk* thickened. *Styles* hairy. *Stigmas* protruded in a globose mass. *Fruit* smooth, shining, scarlet, ovate elliptic, or oblong, soft and pulpy when ripe, with a pleasant acid flavour.

Habitat.—Thickets, hedges, &c.; very common.

Shrub; flowering in June and July.

This is our commonest species of wild Rose, growing in most parts of the country in the greatest profusion, and upon all kinds of soil, and in almost every variety of situation, from which circumstance it is not surprising that we meet with a great inconstancy in its characters and appearance. The strong erect shoots which it often puts up are much used by gardeners for grafting different species of Roses upon, for the purpose of making standard Rose trees, and sometimes we have seen many different species of Roses all blooming from one stock. This plan of cultivating the Rose for ornamenting lawns and open pleasure grounds is very pretty, and it is also extremely useful in blooming rare and delicate species. The pulp of the fruit is used for making a conserve, which is agreeably acid, and sometimes brought to table on the Continent as dessert. When boiling water is poured upon it, and then strained, it forms a pleasant cooling drink in fevers, &c.; and taken alone, it is found useful in allaying the irritation of sore throats, &c. The flowers of many of the varieties are delicately coloured, as though

"Touch'd so tenderly
As a pure ocean shell, with faintest red,
Melting away to pearliness!"

15. *R. bracteascens*, Woods. (Fig. 811.) *Bracteated Dog Rose*. "Calyx tube globose; prickles hooked; leaflets simply serrated, downy beneath; bracteas overtopping the fruit."

English Flora, vol. ii. p. 392.—Hooker, British Flora, ed. 3. vol. i. p. 342.—*R. dumetorum*.—Lindley, Synopsis, p. 102.

"Mr. Woods describes this *shrub* as six or seven feet high, with diffuse branches. *Prickles* more numerous, more slender, and less curved than usual in the group to which it belongs. *Petioles* downy, without glands, rarely without prickles. *Leaflets* elliptical, hairy above, as well as downy beneath. *Peduncles* bare, or more rarely with few and feeble *setae*. *Styles* included; head of *stigmas* conical, fruit globose. He chiefly depends on the shape of the *fruit*, the mass of very woolly *styles*, and the immense *bracteas* to distinguish it as a species."

Habitat.—"About Ulverston, Lancashire; and a *var.* with nearly smooth stipules and glandulous calyx segments, at Ambleside, Westmoreland."—Woods.

Shrub; flowering in June and July.

Such is the account which Mr. Borrer has given of this plant; and he remarks further, "I leave it for future consideration, having seen only specimens kindly communicated by Mr. Woods, which agree entirely as far as they go with his description; but seem very closely allied to his *R. collina*," (*R. canina*, *v. Forsteri*).—From our own observations we are disposed to consider this a variety of *R. canina*, so inconstant and intermixed are the characters that would seem to distinguish it as a species. We have now before us a plant agreeing with the above characters, except that the calyx tube is oblong, not globose; and another with the leaflets doubly not simply serrated, and but slightly downy, but the bractea is very large, serrated, and longer than the fruit. We, however, leave it as it stands, in the words of Mr. Borrer, and perhaps further observation will lead to more definite conclusions.

16. *R. caesia*, Smith. (Fig. 812.) *Glaucous Dog Rose*. Prickles numerous, uniform, strongly hooked; leaflets doubly serrated, and downy, ovate, glaucous; calyx segments pinnate, deciduous; fruit elliptical, smooth.

English Botany, t. 2367.—English Flora, vol. ii. p. 390.—Hooker, British Flora, ed. 3. vol. i. p. 242.—Lindley, Synopsis, p. 102.—*R. canina*, *collina*.—De Cand. Prod. 2. p. 614.

Root with spreading suckers. *Shrub* from four to six feet high, erect, much branched, the stem and old branches with brown bark, the shoots and young branches of a glaucous green. *Prickles* uniform, numerous, stout, much hooked, compressed and dilated at the base. *Leaves* with the common footstalk downy, and more or less glandular, and sometimes with a few slender prickles on the under side. *Stipules* pale, thin, dilated, concave, with acute points, more or less hairy, and glandulous on the margin. *Leaflets* ovate, or elliptic ovate, acute, of a glaucous green, paler beneath, and more downy than above, more or less doubly serrated, often irregularly. *Flowers* solitary, sometimes several together. *Peduncles* naked, or sparingly scattered over with hairs. *Bractees* broad, thin, pale, elliptical, pointed, downy, and glandulous. *Calyx* with an elliptical naked glaucous tube, becoming of a brownish purple colour, its segments dilated at the base, narrow, and elongated at the point, with irregular narrow pinnæ, and more or less downy and glandular, or smooth, and only downy and glandular on the margins. *Petals* obcordate, pale pink, or white. *Styles* slightly prominent and hairy. *Stigmas* in a round compact mass. *Fruit* "ovate urceolate, scarlet, soft and pulpy when ripe, before which it loses the segments of the calyx."

Habitat.—Highland valleys of Perthshire and Argyleshire, Scotland; Northumberland and Durham.—*Mr. Robertson*. Near Belfast and Dungiven, County of Derry, Ireland.

Shrub; flowering in June and July.

How far we are correct in retaining this as a species rather than considering it a variety (as De Candolle, Koch, and others, have done,)

of *R. canina*, may admit of doubt for the present; however, we retain it until a further opportunity of more minute investigation occurs.

6. *SYSTYLA*. *Styles cohering in the form of a column, protruded beyond the orifice of the tube of the calyx.*

17. *R. systy'la*, Woods. (Fig. 813.) *Close styled Dog Rose*. Prickles strongly hooked; leaflets simply serrated, without glands; calyx segments slightly pinnate, deciduous; styles united, smooth; root shoots nearly erect, arched.

English Flora, vol. ii. p. 396, (excl. of the foreign syn.)—Hooker, British Flora, ed. 3. vol. i. p. 243.—Lindley, Synopsis, p. 102—*R. collina*.—English Botany, t. 1895, (excl. syn.)—*R. stylosa*.—De Cand. Prod. 2. p. 599.

α. ovata, Lind. Leaflets ovate, fruit oblong.

Lindley, Synopsis, p. 102.—*R. stylosa*, Desv.—*R. stylosa, α. Desv auxiana*, Ser.—De Cand. Prod. 2. p. 599.

β. lanceolata, Lind. Leaflets ovate lanceolate, fruit spherical.

Lindley, Synopsis, p. 102.—*R. stylosa, δ. (?) lanceolata*, Ser.—De Cand. Prod. 2. p. 599.

Root with short spreading suckers. *Shrub* slender, with but little branched stems, from eight to twelve feet long, the root shoots strong, arched. *Prickles* strongly hooked, short, with a much dilated spreading base, scattered on the stems, but mostly in pairs beneath the leaves of the branches. *Leaves* with the common footstalk downy, sometimes glandular, and bearing several slender prickles on the under side. *Stipules* pale, thin, linear, with spreading points, the margins mostly downy, often glandular, and serrated. *Leaflets* five to seven, ovate, elliptic, or lanceolate, the margins simply, rarely doubly serrated, bright green, and shining above, sometimes an opaque green, paler beneath, smooth, except the mid-ribs on the under side being more or less hairy, and sometimes a few scattered on the upper. *Flowers* rarely solitary, generally numerous, in terminal bunches. *Peduncles* long, slender, more or less numerous clothed with glands, or short setæ, of a glaucous reddish colour, as well as the lanceolate bractæas. *Calyx* with a globose or oblong tube, smooth, rarely glandulous or hairy, the segments short, broadly lanceolate, with narrow tapering point, and entire, or with a few slender narrow pinnæ on the margin, smooth, or with a few glands, downy within, reflexed and deciduous before the fruit is ripe. *Petals* obcordate, a delicate pale pink, yellow at the base, sometimes white. *Styles* united into a column, usually protruded, as long as the stamens, but sometimes almost included, smooth. *Stigmas* forming a conical head. *Fruit* oblong, or globular, pulpy, and of an orange red when ripe, smooth, crowned by the persistent styles and the enlarged conical disk, of a pleasant flavour.

Habitat.—Hedges and thickets, especially in the South of England, and near Cork, Ireland.—*Mr. Drummond*.

Shrub; flowering in June and July.

The erect not trailing growth of the root shoots, and the short much dilated base of the prickles, are the best characters by which this species is distinguished from the following. The leaves are often when grown in an exposed situation of a pink colour, as well as the prickles. The habit of the plant is similar to *R. canina*, but the large elegant bunches of its flowers are more delicate and beautiful.

18. *R. arvensis*, Huds. (Fig. 814.) *Trailing Dog Rose*. Prickles unequal, hooked; leaflets simply serrated, deciduous, glaucous beneath, without glands; calyx segments slightly pinnated, deciduous; styles united, smooth; root shoots long, trailing.

English Botany, t. 188.—English Flora, vol. ii. p. 397.—Hooker, British Flora, ed. 3. vol. i. p. 244.—Lindley, Synopsis, p. 102.

β. flexuosa. Shoots flexuous; leaves ovate lanceolate, shining, scarcely glaucous beneath.

γ. Hooker's British Flora, ed. 3. vol. i. p. 244.

Root with creeping suckers. *Shrub* from three to four feet high, with long slender trailing shoots, often numerous branched, the bark a glaucous green, or a dull brownish purple. *Prickles* mostly of unequal sizes, numerous, hooked, and but slightly dilated at the base, scattered, less numerous on the branches, and often of a reddish colour. *Leaves* with the common footstalk downy, sometimes glandular, and having on the under side several slender hooked prickles. *Stipules* pale, thin, narrow, linear, mostly downy at the back, reddish, and more or less fringed with glands. *Leaflets* from five to seven, flat, ovate, elliptical, or roundish, thin, dull green above, much paler and glaucous beneath; or as in *β. flexuosa* they are a brighter green both on the upper and under side, the margins coarsely, sometimes irregularly and doubly serrated, smooth above, often downy, especially on the mid-rib on the under side. *Flowers* solitary on the lateral branches, numerous on the shoots, in large handsome bunches. *Bractees* lanceolate, often serrated on the margin, and fringed with small glands. *Peduncles* rather long, slender, rough, with almost sessile glands, often mixed with a few setæ. *Calyx* with an ovate purplish glaucous smooth tube, the segments short, broad, ovate, with an acute point, entire, or with a few short *pinnæ*, smooth, or finely downy towards the margin, and on the inside reflexed, falling away before the fruit is ripe. *Petals* obcordate, white, yellowish towards the base, at first concave, at length spreading. *Fruit* ovate, spherical, or elliptical, smooth, of a fine blood red, with an orange pulp, and a pleasant flavour, crowned by the thickened disk and persistent style.

Habitat.—Woods, hedges, thickets, &c., common; less frequent in Scotland and Ireland.

Shrub; flowering in June and July.

The variety *β. flexuosa* appears to be a plant connecting it with *R. sempervirens* in its general appearance, but that species has the

leaves persistent, which is not the case with our plant. And some of its varieties so nearly approach the *Ayrshire Rose*, (*R. capriolata*, Neil,) that it is difficult to distinguish them from each other; indeed De Candolle has united them, and considers it only as a variety. It is, however, extremely difficult to distinguish varieties from species in plants like the Roses, where hybrids by the intermixing of species are so readily produced. The flowers are very beautiful, and have at first an extremely delicate fragrance, which, however, soon passes away, as the flowers expand. It may have been this species which suggested to Spenser the following lines:—

"Ah! see, whose fayre thing doest faine to see,
In springing floure the image of thy day!
Ah! see the virgin Rose, how sweetly shee
Doth first press forth with bashful modestee,
That fairer seems the lesse ye see her may.
Lo! see soone after how more bold and free
Her bared bosome she doth broad display.
Lo! see soone after, how she fades and falls away."

GENUS IX. RU'BUS.—LINN.* *Bramble*.

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* five cleft, persistent. *Petals* five. *Carpels* numerous, drupaceous, single seeded, inserted into a hemispherical or conical fleshy *receptacle*.—Name of doubtful origin, probably from the Celtic word *rub*, red; or the Latin *ruber*.

* Is a numerous genus of shrubby or herbaceous plants, the former presenting peculiarities to which it is needful to direct the attention in discriminating the species. The *stem* is erect, and curved at the top, or rising from a curved base, becomes arched, decurved, and mostly takes root at the end, and sometimes also by its lateral branches; during the winter the shoots for the most part perish, generally only a portion near the original root, and those parts which have formed new ones survive. From that portion of the original plant which survives, there are put out generally a number of branches, which bear fruit the following summer, which do not, however, live after the perfection of the fruit; young shoots at the same time spring up from the old roots, and extending like those the year before, often to several yards distance; and as the appearance of the shoots and their leaves is different from those of the stem and fruit bearing branches, it is necessary in most instances to be acquainted with both. The best discriminating characters are those of the stem, the prickles, and the leaves. In speaking of the *stem*, the barren root shoots are described; and of the *leaves*, those of the barren stems, but frequently it is necessary to take into consideration both those of the barren and flowering stems, and in the form of the leaflets the middle one is always referred to. So many are the difficulties in discriminating the species of this genus, notwithstanding the valuable assistance which is afforded by the elaborate Monograph of Weihe and Nees Von Esenbeck, who have described and figured in their "*Rubi Germanici*" forty-eight supposed species, that Dr. Lindley, who has made them an especial object of his study for

1. *Leaves pinnate.*

1. *R. idæus*, Linn. (Fig. 815.) *Raspberry*. Stem erect, round, downy; prickles slender; leaves with three or five ovate leaflets, coarsely serrated, white and downy beneath; petals erect, ovate, wedge-shaped, as long as the calyx.

English Botany, t. 2442.—English Flora, vol. ii. p. 408.—Hooker, British Flora, ed. 3. vol. i. p. 246.—Lindley, Synopsis, p. 92.

Root with creeping suckers. *Stem* erect, biennial, from three to four feet high, round, at first downy, becoming of a pale purplish brown, and more or less numerous scattered over with slender almost needle-like prickles, which are easily rubbed away, and sometimes they are altogether wanting. *Leaves* pinnate, the common footstalk long, channeled above, downy, and scattered over with pale slender prickles, and bearing near the base a pair of linear stipules. *Leaflets* three or five, the lateral pairs nearly sessile, ovate lanceolate, white and downy beneath, nearly smooth and green above, the margins coarsely, acutely, and somewhat irregularly cut and serrated, the terminal leaflet largest, ovate, sometimes in the upper leaves the lateral ones are united to the middle one, and then it has a tri-lobed appearance. *Flowers* in small terminal clusters, drooping on slender more or less prickly stalks. *Calyx* ovate lanceolate, with a long tapering point, downy, and sometimes prickly, spreading. *Petals* erect, narrow, ovate, wedge-shaped, white. *Stamens* numerous, with awl-shaped filaments. *Styles* numerous, with a bifid stigma, the germen clothed with white shining hairs. *Fruit* scarlet, ovate, formed of numerous small nuts, enveloped in succulent coverings, placed upon a dry conical receptacle, very fragrant, with a sweet acidity.

Habitat.—Woods, especially in the North of England, Scotland, and Ireland.

Shrub; flowering in May and June.

The Raspberry is a well known cultivated shrub, requiring a shady situation or planting in close rows in an open situation. It is a native of most parts of Europe in the mountainous districts, and it is found

several years, says, "I am bound to declare that I can come to no other conclusion than that with which I first started,—namely, that we have to choose between considering the four first named plants (*R. suberectus*, *corylifolius*, *fruticosus*, *casius*;) the only genuine British species, or adopting in a great measure the characters of the learned German Botanists, who have so much distinguished themselves in the elaboration of the genus. So clear is my opinion on this point, that, if it had been possible to prove the four species to which I have alluded to be themselves physiologically distinct, I should at once have reduced all the others to their original places; but as it is in the highest degree uncertain whether *R. fruticosus*, *corylifolius*, and *casius*, are not as much varieties of each other as those which it would be necessary to reject, I have thought it better to steer a middle course, until some proof shall have been obtained either one way or the other.—Lindley's Synopsis, p. 91.



815

Rubus idæus.



816

Rubus suberectus.



817

Rubus plicatus



818

Rubus carpiniifolius.



819 *Rubus rhamnifolius.*



820 *Rubus fruticosus.*

on Mount Ida, in Crete, from which place it is said to have derived its specific name. By cultivation several varieties are obtained, the fruit varying in colour from scarlet to yellow and white. When ripe it is highly esteemed, being agreeable to most persons, and it is one of our most unobjectionable fruits as a dessert; when boiled into a confection with sugar, it is one of the most useful and esteemed, and is in various ways formed into sweetmeats.

2. *Leaves digitate, or pedate.*

* *Stem woody.*

a. *Nearly erect, not rooting.*

2. *R. suberectus*, Anderson. (Fig. 816.) *Upright Bramble.* Stem nearly erect; prickles uniform, slightly hooked, slender, few; leaves digitate, quinate; leaflets thin, pale green, and hairy beneath, the lower pair nearly sessile; raceme simple, corymbose.

English Botany, t. 2572.—English Flora, vol. ii. p. 407.—Hooker, British Flora, ed. 3. vol. i. p. 246.—Lindley, Synopsis, p. 92.

Stem from three to four feet high, nearly upright, or only slightly curved above, obtusely angular, smooth, or scattered over with a few hairs, and small inconspicuous glands, green, and more or less deeply tinged when grown in exposed situations, with a purplish red. *Prickles* scattered, small, slender, deflexed, scarcely hooked, dilated at the base. *Leaves* with the common footstalk stout, hairy, and deeply channeled above, bearing near its base a pair of linear lanceolate stipules. *Leaflets* five, disposed in a digitate manner, the lateral ones sessile, or nearly so, ovate, with an acute or rounded point, the terminal one with a short stalk, larger than the others, ovate, or nearly so, the margins irregularly serrated, occasionally somewhat lobed, a shining green above, paler and downy beneath, with prominent lateral veins and a stout mid-rib, which, like the common footstalk, is frequently scattered over with pale slender prickles. *Flowers* in a terminal simple corymbose raceme, rarely branched in a paniculated manner, the pedicles spreading, or ascending, round, hairy, and having at the base a narrow linear leafy bractea, simple, sometimes cut. *Calyx* with green ovate long taper or acute and short pointed segments, downy, white and woolly within, and on the margin. *Petals* white, obovate, crumpled, spreading. *Fruit* rather small, a bright red.

Habitat.—Damp situations by the side of streams, bogs, &c.; in mountainous situations in England, Scotland, and Ireland.

Shrub; flowering from June to August.

3. *R. plicatus*, Weihe and Nees. (Fig. 817.) *Plaited-leaved Bramble.* "Stem not rooting, nearly erect, obsoletely angular, smooth, with small somewhat curved uniform prickles; leaves digitate, of five stalked cordato-ovate pointed plicate leaflets, paler green beneath; panicle prickly, nearly simple, corymbose; calyx slightly reflexed."

Borr. in English Botany, Supp. t. 2714.—Hooker, British Flora, ed. 4. vol. i. p. 203.—*R. suberectus*, β .—Hook. Brit. Flora, ed. 3. vol.

i. p. 246.—*R. nitidus*, Weihe and Nees.—English Flora, vol. ii. p. 405.—*R. affinis*, Weihe and Nees.—Lindley, Synopsis, p. 92.

This, which is by no means an uncommon plant, we had regarded as only a variety of the last species; but Mr. Borrer, who has devoted much time to the study of this genus, remarks in the English Botany Supp. that "Sir J. E. Smith was misled to give it as *R. nitidus*, of Weihe and Nees, by the writer of the present article, who, when the first edition of Hooker's British Flora was published, regarded it, *R. plicatus* of the German authors, as a mere variety of *R. suberectus*. This last opinion also he has been led to abandon by the remarks of our friend Mr. W. Wilson, who has carefully availed himself of his opportunities of studying *R. suberectus* in its wild state. He confirms the statements of Anderson and Smith, that the leaves on the young stems of that plant are often pinnate, and that the truly ripe fruit is not black, but deep red, 'the colour of a ripe Morello cherry.' In *R. plicatus* the fruit, whilst ripening, is as in *R. suberectus*, of a beautiful bright red; but it is perfectly black when ripe, and the leaves are never pinnate: the stalks also of the lower pair of leaflets, although short, are more perceptible than in *R. suberectus*; and these differences, in addition to the essential one of curved, not setaceous, and larger and more numerous, although still small and sparingly scattered prickles, seem to warrant the separation. In *R. suberectus* the panicle is usually unarmed; in *R. plicatus* rather copiously prickly."

Habitat.—"Forest districts of Sussex, in heathy and somewhat boggy places chiefly on the banks of streams, not rare.—*Mr. Borrer*. Near Clady and Kilrea, County of Derry, Ireland. - *Mr. Moore*.

Shrub; flowering from June to August.

b. *Stem arched or prostrate, rooting.*

4. *R. carpinifolius*, Weihe and Nees. (Fig. 818.) *Horn-beam leaved Bramble*. Stem arched, somewhat angled and furrowed, hairy; prickles numerous, uniform, deflexed, curved; leaves digitate, of five stalked ovate acuminate inciso-serrate leaflets, paler beneath; panicle long, compound, hairy.

Borrer in English Botany Supp. t. 2664.—Hooker, British Flora, ed. 3. vol. i. p. 247.—Lindley, Synopsis, p. 93.

Stem decumbent, or arched, several feet long, obtusely angled, and slightly furrowed, clothed with soft hairs, but without any stalked glands amongst them, of a dark purple colour. *Prickles* numerous, arising from the angles of the stem, not very large, mostly deflexed, and somewhat curved, dark at the base, pale yellow towards the point, those on the panicle and leafstalks smaller, very slender, more strongly hooked. *Leaves* with the common footstalk stout, obtusely angular, with a pair of slender linear *stipules* at the base. *Leaflets* on short stalks, three on the flowering branches, five on the stem, ovate, with an acuminate point, somewhat cordate at the base, and more or less cut and irregularly serrated on the margins, dark dull green above, smooth,

or scattered over with hairs, especially along the course of the ribs, the under side paler, more hairy, strongly marked with prominent ribs, those on the flowering stems white. *Flowers* pinkish, in long narrow *panicles*, sometimes short and compact, the branches divided, or occasionally the panicle is almost simple, the branches are clothed with close pubescence, sometimes bearing bristles also, and mostly numerous slender prickles, nearly straight. *Calyx* with ovate pointed downy segments, scarcely reflexed. *Stamens* with slender *filaments* and dark purple *anthers*. *Fruit* small, of a few globose loose grains, rarely all formed into a perfect berry.

Habitat.—Hedges and bushy places; Sussex, Cheshire, Lancashire, North Wales.—*Mr. W. Wilson*. Lincolnshire.

Shrub; flowering in July and August.

This species it is probable is not a very uncommon one, but may be mistaken for the following species, *R. macrophyllus*, and *R. leucostachys*; but, as Mr. Borrer observes, it "more resembles in habit some of the varieties of *R. Koehleri*, from all of which it differs decidedly, however, by the total absence of acicular prickles and small glands on the stems;" and Lindley says it is the *R. leucorstachys* form of *R. corylifolius*.

5. *R. rhamnifolius*, *Weihe and Nees*. (Fig. 819.) *Buckthorn-leaved Bramble*. Stem arched, obtusely angular, and furrowed, downy, with straight horizontal or deflexed prickles; leaves digitate, of five stalked roundish or ovate leaflets, rugose, pale and hoary beneath; panicle repeatedly compound, spreading, and somewhat downy.

Borrer in English Botany Supp. t. 2604.—English Flora, vol. ii. p. 402.—Hooker, British Flora, ed. 3. vol. i. p. 248.—Lindley, Synopsis, p. 92.

Stem obtusely angular, almost round, sometimes slightly furrowed, smooth, or scattered over with soft hairs, occasionally a few *setae*, and sometimes a few glands, generally of a pinkish colour on the exposed side, and the young branches green, not glaucous. *Prickles* scattered, not very numerous, chiefly on the angles of the stem, nearly straight, horizontal, or deflexed, rarely hooked, slender, and not much dilated at the base. *Leaves* with the common footstalk rather long, and stout, scarcely channeled or furrowed above, furnished as well as the mid-ribs with more or less numerous pale slender hooked prickles, downy. *Leaflets* five on the stems, three on the branches, roundish ovate, with an acuminate point, and more or less cordate at the base, the terminal one almost always distinctly so, the margins mostly irregularly lobed, and unequally serrated, soft and pliant, the upper surface a palish green, smooth, or slightly hairy, paler and more downy beneath, the upper ones white and hoary, with close netted down. *Panicle* oblong, with two or three times divided spreading branches, clothed with close down, rarely naked, and furnished with a few prickles. *Bracteas* linear lanceolate, sometimes cleft. *Flowers* spreading, white or pink. *Calyx* with ovate acute rarely long narrow pointed segments, pale,

soft, and downy, reflexed. *Petals* large, roundish, crisped, spreading. *Stamens* with slender *filaments*, and ovate *anthers*. *Fruit* large, black, sweet, with but little acidity.

Habitat.—Hedges, woods, and thickets; common.

Shrub; flowering in July and August.

This species, it is observed by Lindley, is an intermediate form between *R. fruticosus* and *R. corylifolius*.

6. *R. fruticosus*, Linn. (Fig. 820.) *Common Bramble, or Blackberry*. Stem arched, angular, and furrowed, downy, with straight horizontal or deflexed prickles; leaves digitate, of five stalked shining obovate coriaceous leaflets, decurved at the edges, white on the under side; panicle long, narrow, downy.

English Botany, t. 715.—English Flora, vol. ii. p. 400.—Hooker, British Flora, ed. 3. vol. i. p. 248.—Lindley, Synopsis, p. 95.

Stem stout, several feet long, arched, spreading, angular, and deeply furrowed, downy when young, often smooth with age, and of a dull deep purple colour, the younger branches of a dull glaucous green. *Prickles* not very numerous, stout on the angles of the stem, straight, horizontal, or deflexed, of a pinkish colour. *Leaves* with stout rounded downy footstalks, and as well as the mid-ribs more or less armed with paler hooked prickles. *Leaflets* five on the stem, three on the branches, on short footstalks, roundish ovate, obtuse, or acutely pointed, rounded, or somewhat heart-shaped at the base, dark green above, and smooth, or nearly so, beneath paler, those of the stem green, but of the flowering branches white, from the close woolliness, the margins unequally serrated, and rolled back. *Stipules* linear, lanceolate, downy. *Panicle* elongated, its branches somewhat divided, downy, and armed with a few slender hooked prickles. *Calyx* ovate, acute, almost white, with pale close pressed woolliness, acute, rarely with an elongated point, or armed with slender prickles. *Petals* obovate, or rounded, somewhat crumpled, pink, spreading. *Stamens* numerous, with slender *filaments*, and as well as the *anthers* a dark red. *Fruit* large, globose, black, sweet, with an agreeable flavour.

Habitat.—Hedges, thickets, &c.; very common.

Shrub; flowering in July and August.

This is our commonest Bramble, growing in great abundance in the hedges and woods in most parts of the country. It is readily known by its angled deep furrowed dark purple stems and glaucous branches. Its shoots extend to many feet in length, and often take root at the ends; they are tough and pliable, and are much used for binding hedges, making straw bee hives, and for fastening the thatch on stacks, &c. The fruit is collected when ripe, and used for various domestic purposes, as puddings, the making of jam, either alone or mixed with other kinds of fruit, or bruised and fermented into wine; but its preparations are not much esteemed from the absence of a sharpness or acidity in their flavour.



821 *Rubus leucostachys.*



822 *Rubus Koshleri*



823 *Rubus macrophyllus.*



824 *Rubus corylifolius.*



825 *Rubus caesius.*



826 *Rubus saxatilis.*

7. *R. leucosta'chys*, Smith. (Fig. 821.) *long clustered Bramble*. Stem arched, slightly angled and furrowed, hairy; prickles equal, nearly straight, horizontal or deflexed; leaves digitate, of five stalked roundish ovate jagged flat coriaceous leaflets, or paler white beneath; panicle elongated, leafy, prickly, and scattered over with a few stalked glands.

English Flora, vol. ii. p. 404.—Borrer in English Botany, Suppl. t. 2631.—Hooker, British Flora, ed. 3. vol. i. p. 249.—Lindley, Synopsis, p. 95.

β. Stem less shaggy; prickles very large.

Hooker, British Flora, ed. 3. vol. i. p. 249.

Stem stout, many feet long, arched, obtusely angular towards the root, frequently nearly round, and but slightly furrowed, more so above than below, clothed with long spreading soft hairs, when young becoming almost naked, sometimes the pubescence is quite close pressed, the stem becoming by exposure a dark purple. *Prickles* numerous or scattered, straight, or slightly hooked, spreading horizontally, or deflexed. *Leaves* with long stout slightly channeled footstalks, and like the mid-ribs more or less numerous furnished with slender hooked prickles, *leaflets* roundish ovate, with an acute or abrupt point, rounded, or mostly cordate at the base, of a leathery texture, dark green, and smooth above, paler beneath, and clothed with soft tawny shining pubescence, the upper ones often quite white, the margins flat, unequally serrated or jagged. *Panicle* various, mostly long and narrow, with the lower branches arising from the axis of the upper leaves, or naked, and almost a simple raceme, clothed with shaggy or close down, amongst which are scattered a few stalked glands and *setæ*, and more or less numerous slender hooked prickles. *Calyx* with ovate acute, rarely with the point elongated, spreading or reflexed segments, thickly covered with white or tawny close pressed pubescence, rarely armed with prickles. *Petals* roundish oblong, white, or pink, spreading. *Stamens* with slender filaments, and roundish purple *anthers*. *Fruit* globose, black, of a pleasant sweet taste when quite ripe.

Habitat.—Woods, thickets, hedges, &c.; Sussex.—Mr. Borrer. Hampshire, Berkshire.—Mr. Bicheno. Not unfrequent in Nottinghamshire.—*R. D.* β. Essex.—Mr. Forster.

Shrub; flowering from July to August.

This species approaches *R. fruticosus* in its general appearance, and we have frequently found specimens so intermediate between the two as to be at a loss to know to which species to refer them. The stem, however, is much less angular, and but slightly furrowed; the prickles of the panicle are larger, more numerous, and scattered over with glands, which characters, when they occur on an elongated naked panicle, approach to *R. Koehleri*. The *R. diversifolia*, Lindley's Synopsis, Mr. Borrer thinks might be referred to this species.

8. *R. Koehle'ri*, Weihe and Nees. (Fig. 822.) *Koehler's Bramble*. Stem decurved, somewhat angular and furrowed, hairy, glandular, and setose; prickles numerous, straight, or curved, unequal; panicle much divided, large; leaves digitate, of five stalked ovate or elliptical cordate pointed leaflets.

Borrer in English Botany, Suppl. t. 2605.—Hooker, British Flora, ed. 3. vol. i. p. 250.—Lindley, Synopsis, p. 93.—*R. glandulosa*.—English Flora, vol. ii. p. 404, (*excl. Syn. of Ballardii, and perhaps others.*)—*R. a'finis*.—English Flora, vol. ii. p. 406, (*excl. Syn.*)

β. fusco-ater. Leaflets cuspidate; panicle very short, loose, and straggling.

R. fusco-ater, Weihe and Nees. Lindley, Synopsis, p. 93.

Stem mostly many feet in length, decurved, or prostrate, generally very stout, sometimes very long and slender, more or less angular and furrowed, green in the shade, becoming red or purple in the sun. *Prickles* numerous, very unequal in size, irregularly scattered, some straight, horizontal, or decurved, others more or less hooked, clothed with spreading hairs, more thickly above, and the panicle, amongst which are numerous glandular ones and *setæ*, which pass into prickles. *Leaves* with the common footstalk stout, long, scarcely channeled above, armed as well as the mid-rib of the leaflets with hooked prickles, and more or less copiously clothed with hairs and glandular *setæ*, especially at the base, *leaflets* five on the stem, three on the branches, roundish ovate, with an acute or long tapering point, the margin flat, or slightly recurved, unequally serrated, or cut and serrated, the upper surface a pale green, smooth, or scattered over with a few hairs, especially along the ribs, frequently becoming blotched with irregular brown patches, the under side pale green, and more or less hairy, the upper ones white and hoary. *Panicle* very variable in size, often very long, much branched and divided, leafy or naked above, more or less copiously clothed with pubescence, glandular hairs, *setæ*, and various sized prickles. *Calyx* segments ovate lanceolate, with an acute or elongated point, downy, setose, and mostly prickly, reflexed, or spreading. *Petals* rather small, white or pale pink, varying from roundish to oblong. *Stamens* with very slender *filaments*, and small roundish *anthers*. *Fruit* rather small, black, with large granules, of an acid pleasant flavour.

Habitat.—Woods, hedges, and thickets, in various parts of England and Ireland.

Shrub; flowering in July and August.

To this species the *R. rudis*, Weihe and Nees, Lindley's Synopsis, p. 93, Mr. Borrer thinks might be added. He observes that it "differs somewhat in aspect, and I cannot confidently unite it to this species, although I do not find satisfactory characters to distinguish it. Its chief peculiarity is in its prickles, which, although numerous and irregular, differs less in shape and size, and approach somewhat to

those of *R. rhamnifolius* or *R. carpinifolius*. The setæ are irregularly distributed, occurring in groups among the rigid hairs which copiously clothe the stem. The leaves are rather rigid." It grows, he says, in Sussex forest. Mr. Forster finds it in Essex, and it is not unfrequent in the woods in Nottinghamshire and Lincolnshire.

9. *R. macrophyllus*, Weihe and Nees, (Fig. 823.) *Large-leaved Bramble*. "Stem somewhat angular and furrowed; prickles uniform few, small; leaves digitate, of three or five stalked elliptical or ovate flexible leaflets; panicle repeatedly divided, somewhat corymbose."

Borrer in English Botany, Supp. t. 2625.—Hooker, British Flora, ed. 3. vol. i. p. 250.—Lindley, Synopsis, p. 93.

"Stem rather soft and spongy, about half an inch thick near the base, upright at first, then decurved, and growing often fifteen feet or more in length, dull green, purplish when much exposed, covered with short soft hairs, which are usually lost in the flowering state of the plant. Prickles thinly scattered on the angles of the stem, short and small, horizontal or deflexed, with a thick base. Leaflets often six inches long, soft and pliant, hairy, and mostly green on both sides, occasionally greyish beneath, rather coarsely serrated, the central one generally cordate, lower leaves of the flowering branches and many of those of the barren stems ternate. Panicle hairy, with few prickles, and no setæ, but small inconspicuous glands may be found both here and on some parts of the stem. Calyx segments acute, at length reflexed, woolly and glandulous, with occasionally a very few prickles. Petals white, or faint pink. Fruit black and shining, of a moderate size, rather loosely set."

Habitat.—Hedges, thickets, woods; rare. Sussex.

Shrub; flowering in July and August.

This species we are unacquainted with, except by dried specimens. It appears an intermediate state between *R. Koehleri* and *R. corylifolius*; it approaches some of the varieties of the former in habit, and the downiness has not any setæ amongst it, while the prickles are uniform, fewer, shorter, and with a broader base; and from *R. corylifolius* it differs in the leaflets being more ovate, the more elongated panicle, its regular prickles, and more angular and deeper furrowed stem. Lindley says it is *R. corylifolius*, advancing towards the characters of *R. rhamnifolius*; or in other words, is a transition from *R. corylifolius* to *R. fruticosus*.

10. *R. corylifolius*, Smith. (Fig. 824.) *Hazel-leaved Bramble*. Stem roundish, decurved, with nearly straight scattered unequal prickles; leaves digitate, with five roundish cordate ovate leaflets, finely hairy beneath; calyx spreading, or reflexed.

English Botany, t. 827.—English Flora, vol. ii. p. 409.—Hooker, British Flora, ed. 3. vol. i. p. 251.—*R. vulgaris*, Weihe and Nees.—Lindley, Synopsis, p. 93.

Stem long, round, sometimes obtusely angular, stout, decurved, spreading, and often rooting, smooth, very brittle, green in the shade, becoming pink or purplish by exposure to the sun, often glaucous, quite smooth, or finely downy. *Prickles* scattered, rather small, compressed, straight, horizontal, or decurved, rarely, except on the common footstalks and panicle, hooked. *Leaves* with the common footstalk long, stout, round, or slightly channeled above, downy. *Leaflets* five below, three above, roundish ovate, with a cordate base, and an obtuse or acute point, nearly smooth above, and more or less thickly clothed with soft close down on the paler under side, the margin flat, irregularly serrated, and often cut into unequal lobes, the lower pair of leaflets sessile, and overlapping the others. *Panicle* downy, often with angular branches, very various in form and size, often long, and spreading, and as frequently contracted, and somewhat corymbose. *Calyx* with ovate acute spreading or reflexed woolly segments, sometimes furnished with hairs, and armed with slender prickles. *Petals* white, waved, and crumpled. *Stamens* with slender awl-shaped filaments and ovate anthers. *Fruit* with large grains, violet, black, of a pleasant acid flavour.

Habitat.—Woods, hedges, and thickets; common.

Shrub; flowering in July and August.

This is a common and very variable plant, especially in the form of the panicle, and the size and figure of the leaflets; the upper leaves are sometimes three inches long, broadly heart-shaped, often three lobed, the under side is pale green, thickly clothed with a soft close down, of a tawny, very rarely white colour. It is one of our more frequent species of bramble, but its large grained fruit are not so much esteemed by the country people, as some others; and its long flexible branches are too brittle to be used for thatching, and other purposes of binding to which other kinds are applied. It is, nevertheless, a plant so associated with our earliest and perhaps happiest recollections, some of which will be brought home to the minds of many persons, by the beautiful lines of Ebenezer Elliott, who says—

Thy fruit full well the schoolboy knows,
 Wild bramble of the brake!
 So put thee forth thy small white rose;
 I love it for his sake.
 Though woodbines flaunt, and roses glow,
 O'er all the fragrant bowers,
 Thou need'st not be ashamed to show
 Thy satin threaded flowers;
 For dull the eye, the heart is dull,
 That cannot feel how fair,
 Amid all beauty beautiful,
 Thy tender blossoms are!
 How delicate thy gawsy frill!
 How rich thy branchy stem!
 How soft thy voice when woods are still,
 And thou sing'st hymns to them;

While silent showers are falling slow,
 And, 'mid the general hush,
 A sweet air lifts the little bough,
 Lone whispering through the bush !
 The primrose to the grave is gone ;
 The hawthorn flower is dead ;
 The violet by the moss'd grey stone
 Hath laid her weary head ;
 But thou, Wild Bramble ! back dost bring,
 In all their beauteous power,
 The fresh green days of life's fair spring,
 And boyhood's blossomy hour.
 Scorned bramble of the brake ! once more
 Thou bidd'st me be a boy,
 To gad with thee the woodlands o'er,
 In freedom and in joy.

11. *R. cæsius*, Linn. (Fig. 825.) *Dewberry*. Stem prostrate, round, or nearly so, glaucous ; prickles slender, straight, unequal, passing insensibly into setæ ; leaflets three, rarely five, the outer ones sessile, ovate, often lobed, soft and downy beneath ; calyx embracing the fruit.

English Botany, t. 826.—English Flora, vol. ii. p. 410.—Hooker, British Flora, ed. 3. vol. i. p. 251.—Lindley, Synopsis, p. 94.

β. hirtus. Branches covered with long hairs and glandular bristles.

R. hirtus. Waldst and Ketaih.—Lindley, Synopsis, p. 94.

γ. dumetorum. Stem stronger, obsoletely, angular ; branches with scarcely any bristles ; stem leaves with five leaflets ; panicle leafy, straggling.

R. dumetorum. Weihe and Nees.—Lindley, Synopsis, p. 94.

Stem weak, slender, prostrate, branched, and rooting, round, sometimes obtusely angular, of a pale glaucous green, often becoming by exposure a reddish brown, downy, more or less bristly, and setose, with a few or numerous *prickles*, which are very unequal, scattered, slender, straight, horizontal, or more or less deflexed, never hooked. *Leaves* with a stout round scarcely channeled common footstalk, downy, bristly, and mostly armed with a few slender prickles, leaflets mostly three, sometimes five, and then the outer ones are sessile, the others on short stalks, ovate, or ovate lanceolate, sometimes rounded, unequally serrated, often lobed, and cut, the middle one mostly cordate at the base, the upper surface a light cheerful green, smooth, or slightly downy, paler beneath, the floral ones sometimes almost white, with strong prominent ribs, and more or less thickly clothed with loose spreading shining pubescence. *Panicle* corymbose, mostly of but few flowers, the branches clothed with hairs and down, intermixed with glandular bristles, in greater or less abundance, and slender prickles. *Calyx* of five ovate lanceolate segments, with long narrow points, clothed and armed like the branches, spreading in flowers, closed over the fruit when ripe. *Petals* white or pinkish, ovate oblong,

crumpled. *Fruit* of large loose grains, of a deep violet-blue, covered with a cæous bloom, of a pleasant acid flavour.

Habitat.—Thickets, hedges, banks, &c.

Shrub; flowering in June and July.

Numerous varieties partaking of one or more of the characters of the more marked differences of those above mentioned will be found, which seem to vary according to the soil and situation in which they have grown. If the soil is wet and somewhat shady, the plant is less armed with prickles, and becomes more bristly; if it is in a dry one, it has a more numerous supply of prickles, and is more downy, and between these two conditions various states are found. The fruit is more agreeable in its flavour and acidity than any other of our species.

**** Stem herbaceous, or nearly so.**

12. *R. saxa'tilis*, Linn (Fig. 826.) *Stone Bramble*. Stem nearly herbaceous, prostrate, unarmed, hairy; leaves ternate, coarsely serrated, or cut and downy; panicle of few flowers; fruit small, loosely enveloped in the calyx.

English Botany, t. 2233.—English Flora, vol. ii. p. 411.—Hooker, British Flora, ed. 3. vol. i. p. 252.—Lindley, Synopsis, p. 95.

Root somewhat woody. *Stems* from three to six inches high, simple, or slightly branched, putting out long spreading simple or branched slender prostrate herbaceous shoots, round, or somewhat angular, downy, and armed with a few slender prickles, or without them. *Leaves* distant, with the common footstalk downy, slightly furrowed above. *Leaflets* three, the lateral ones nearly sessile, ovate, or ovate lanceolate, coarsely and doubly serrated, or unequally cut and serrated, a pale cheerful green above, paler beneath, smooth, or more or less downy. *Flowers* from three to five, in a terminal umbellate panicle. *Calyx* angular at the base, its segments oblong, lanceolate, downy within, smooth, or slightly hairy externally, spreading in flower, inflexed in fruit. *Petals* yellowish green, small, oblong. *Fruit* small, bright crimson, of from one to three large smooth grains, of an agreeable acid flavour.

Habitat.—Dry stony places in mountainous situations, chiefly in the North of England, Ireland, and Scotland.

Perennial; flowering in June and July.

This species, approaching in habit the Strawberry tribe, is readily distinguished from all our other species. It is known by the name of the Roebuckberry in some parts of the country, and the old Swedish writers called it *Labrusca*, or Wild Vine, in allusion probably to the habit and general appearance of the plant approaching that of the Wild Vine.

13. *R. arc'ticus*, Linn. (Fig. 827.) *Arctic Bramble*. Stem erect, downy, simple, without prickles; leaves few; leaflets three, smooth, obtusely serrated; flowers one or two; petals roundish, notched.



827

Rubus arcticus.



828

Rubus Chamaemorus.



829

Dryas octopetala.



830

Geum urbanum.



831

Geum rivale.



832

Geum rivale v. luxurians.

English Botany, t. 1585.—English Flora, vol. ii. p. 412.—Hooker, British Flora, ed. 3. vol. i. p. 252.—Lindley, Synopsis, p. 95.

Root woody, slender, branched, creeping. *Stem* erect, herbaceous, simple, round, somewhat angular and downy, without prickles, and mostly bearing a solitary terminal flower. *Leaves* with the common footstalk downy, slightly channeled above. *Leaflets* three, ovate, coarsely and obtusely serrated, a smooth cheerful green above, pale, and somewhat downy beneath, and rough, with elevated ribs. *Stipules* ovate, ribbed. *Flowers* solitary, one or two large for the size of the plant, a beautiful pink. *Calyx* downy, with ovate lanceolate spreading segments. *Petals* ovate oblong, emarginate. *Stamens* with thick club-shaped *filaments*. *Fruit* "of several large grains, of a purplish amber colour, partaking of the flavour of the Raspberry and Strawberry, highly fragrant."

Habitat.—Rocky mountainous parts of the Isle of Mull.—Dr. Walker. Ben-y-glo, above Blair, Scotland.—Mr. Cotton. But not now found in either of these stations.

Perennial; flowering in June.

The fruit of this species is said to be of a most delicious flavour, but it is so impatient of removal from its pure native air in lofty alpine regions, as to become barren by cultivation in our gardens. Linnaeus speaks of it during his Lapland journey as a beneficent plant, the vinous nectar of whose berries frequently recruited his spirits when almost prostrate with hunger and fatigue. He further tells us that the people in Nordland make syrups, jellies, and wine of its berries, not only for their own use, but to send as presents to their friends at Stockholm, esteeming them dainties of the choicest kind.

3. *Leaves simple.*

14. *R. Chamæ'morus*, Linn. (Fig. 828.) *Cloudberry*. *Stem* erect, downy, simple, without prickles; leaves few, simple, lobed; flowers solitary, diœcious.

English Botany, t. 716.—English Flora, vol. ii. p. 413.—Hooker, British Flora, ed. 3. vol. i. p. 252.—Lindley, Synopsis, p. 95.

Root somewhat woody, branched, and spreading. *Stem* herbaceous, erect, or ascending, from two to four or six inches high, angular, smooth, or downy, simple, and mostly bearing a single terminal flower. *Leaves* not very numerous, with stout channeled downy footstalks, roundish, heart-shaped, plaited, five lobed, and unequally serrated, rugose, dark yellowish green above, smooth, or slightly hairy, paler, with prominent ribs, and more downy beneath. *Stipules* roundish ovate, obtuse, veined. *Flowers* large, white, diœcious, on a long downy footstalk. *Calyx* segments oblong, acute, more or less distinctly ribbed, and downy externally, smooth within. *Petals* elliptic, ovate, spreading. *Fruit* large, a cluster of large oblong orange-red granules, of an agreeable flavour, and much esteemed.

Habitat.—High moors and alpine situations. Not uncommon in England, Wales, Scotland, and Ireland.

Perennial ; flowering in June and July.

The Cloudberry is the badge of the Clan Macfarlane. The fruit is much esteemed in almost all northern counties as an extremely useful febrifuge, and is also made into various confections for the use of the table, sauces, &c. So highly esteemed is the Cloudberry by some of our country friends, that we find the "Village Patriarch" thus extolling it—

"But thou art here, thou rarest Cloudberry !
Oh health restorer ! did he know thy worth,
The bilious townsmen would for thee resign
His wall-grown Peach, well pleased. In moorland earth
Thee would he plant, thou more than Nectarine,
Thou better grape ! and, in thy fruit divine,
Quaff strength and beauty from the living bough."

Elliot.

GENUS X. DRY'AS.—LINN. *Dryas*.

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* eight to ten cleft, persistent. *Petals* five to eight. *Carpels* numerous, persistent, inserted into a dry cellular receptacle. *Styles* lateral, simple, with a feathery stigma.—Name from *δρυς*, the oak ; from some resemblance of the leaves to that tree, or from *δρυς*, signifying woods in general, over which the nymphs called Dryades presided.

1. *D. octopet'ala*, Linn. (Fig. 829.) *White Dryas*, or *Mountain Avens*. Leaves crenato-serrate, ovate, obtuse, or sub-cordate.

English Botany, t. 451.—English Flora, vol. ii. p. 432.—Hooker, British Flora, ed. 4. p. 208.—Lindley, Synopsis, p. 98.

Root strong, branched, woody. *Stems* short, prostrate, much branched, and matted together. *Leaves* numerous, in crowded tufts, ovate, or ovate oblong, with an obtuse point, and more or less heart-shaped at the base, a dark smooth shining green above, strongly marked with furrowed lines, beneath white and woolly, with prominent ribs, mostly scattered over with a few stout brown hairs, the margins deeply and more or less bluntly serrated, somewhat rolled back, the *footstalk* rather long, round, and hairy, having at the base a pair of narrow lanceolate hairy *stipules*, rarely smooth. *Flower* solitary, large, pure white, on a round *stalk*, mostly with a solitary stipule, and white, with close woolliness, and more or less profusely scattered over with long black gland tipped bristles, as well as the *calyx*, which is mostly divided to near the base into eight equal linear lanceolate or obtuse segments. *Petals* elliptic, ovate, spreading, sometimes unequal, mostly

eight. *Stamens* numerous, with slender awl-shaped *filaments* and roundish *anthers*, of two kidney-shaped lobes. *Styles* numerous, feathery, with white shining silky hairs, much lengthened out as the seed ripens.

Habitat.—Not uncommon in the alpine districts of England, Scotland, and Ireland.

Perennial ; flowering in June.

This is an extremely beautiful and delicate alpine plant, its large white flowers elegantly bending over its mat of numerous dark leaves, are very ornamental in its large spreading tufts. It is perhaps more frequent in the alpine districts of the Continent than with us ; and this species and *D. integrifolia*, found in Greenland, having the leaves entire, and not crenated, are the only known species of the genus, and there are some doubts if the latter is more than a variety of *D. octopetala*. It is an extremely pretty garden plant, but requires a northern exposure, and a sandy or gravelly soil.

GENUS XI. GE'UM.—LINN. *Avens*.

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* ten cleft, five outer alternate segments, smaller, patent. *Petals* five. *Carpels* numerous, smooth or hairy, inserted into a dry elongated *receptacle*, and terminated by the elongated *style*, hooked at the extremity, and jointed about the middle.—Name from γυνω, to taste well ; or give an agreeable flavour ; from the property of some of the species of the genus.

1. *G. urbanum*, Linn. (Fig. 830.) *Common Avena*, *Herb Bennet*. Stem erect ; leaves ternate, the radical ones lyrato-pinnate ; stipules roundish, cut ; carpels in a spherical head, numerous, downy, each with a jointed awn, smooth or hairy at the base.

English Botany, t. 1400.—English Flora, vol. ii. p. 430.—Hooker, British Flora, ed. 4. p. 208.—Lindley, Synopsis, p. 98.

Root of numerous stout dark brown aromatic fibres. *Stem* about two feet high, round, or obtusely angular, rough, with spreading hairs branched above, and leafy. *Leaves* mostly numerous from the root, on long stalks, lyrato-pinnate, the terminal leaflet rounded, frequently lobed, and unequally cut and serrated, the lateral leaflets small, unequal, the leaves of the stem on shorter stalks, the upper ones sessile, ternate, unequally cut and serrated, with a wedge-shaped base, a cheerful green above, paler beneath, and scattered over with short hairs. *Stipules* large, rounded, more or less cut and irregularly serrated. *Flowers* not very numerous, yellow, small, on long round erect hairy footstalks. *Calyx* spreading, about as long as the ovate *petals*, with short claws and distinct branched veins. *Stamens* with

slender awl-shaped incurved *filaments*, with roundish two celled *anthers*. *Styles* long, curved, remarkably jointed in the middle, smooth, with the exception of the lower part of the upper half being slightly hairy, which half falls off soon after flowering, and leaves the lower half attached to the carpel, having at the extremity a small hook, to which the upper part was attached, and formed the curve. *Carpels* numerous, clothed with rigid hairs.

Habitat.—Woods, hedges, and shady places; frequent.

Perennial; flowering from May to August.

The roots of this plant, commonly known by the name of Avens, are of a dark reddish brown colour, with an odour similar to cloves, having an aromatic bitterish taste, from which qualities it has received the name of *caryophyllata*. It is astringent, and somewhat tonic, and was formerly used as a febrifuge; but its use now as a medicine is almost forgotten, and it is applied only to give a flavour to other articles. It is said that the Augsburg beer, which is much prized in some parts of the Continent, is flavoured by the roots of the Avens, and that this also prevents it from turning sour.

2. *G. rivale*, Linn. (Fig. 831.) *Water Avens*. Stem erect; flowers drooping; leaves ternate, radical ones somewhat lyrate, or interruptedly pinnate; stipules ovate, acute, cut or serrated; carpels in an ovate head, numerous, hairy, with a much elongated jointed feathery awn above the curvature.

English Botany, t. 106.—English Flora, vol. ii. p. 431.—Hooker, British Flora, ed. 4. vol. i. p. 208.—Lindley, Synopsis, p. 98.

β. intermedium, Seringe. Leaves less hairy; lobes of the upper leaves narrower; peduncles more slender.—*Ser*.

Lindley, Synopsis, p. 98.—De Cand. Prod. 2. p. 551.—*G. intermedium*, Ehrh.

γ. luxurians, Trattennich. (Fig. 832.) Flowers semi-double; sepals distinct, transformed into leaves.—*Ser*.

Lindley, Synopsis, p. 98.—De Cand. Prod. 2. p. 552.—*G. hybridum*, Jacq.

Root somewhat woody, with spreading branched fibres, of an astringent taste and aromatic odour. *Stem* from one to two feet high, roundish, hairy, simple, or somewhat paniculated above. *Leaves* dark green above, paler beneath, hairy, the *radical* ones mostly numerous, with long very hairy stalks, interruptedly pinnate or lyrate, the terminal lobe large, rounded, more or less deeply and unequally lobed and serrated, the *cauline* ones ternate, or lobed, cut and unequally serrated, *stipules* ovate, acute, serrated, or cut, sometimes entire. *Flowers* somewhat paniculated, pendulous, or drooping on round long hairy peduncles, becoming erect after flowering. *Calyx* purple, erect, with five large lanceolate segments, and five much smaller intermediate ones. *Petals* of a tawny brown, cordate, wedge-shaped, much branched

with veins. *Stamens* numerous, with slender awl-shaped *filaments*, and ovate two celled *anthers*. *Styles* numerous, becoming after flowering much elongated, curved, remarkably jointed above the middle, where it is feathered with yellowish stout hairs, which shortly falls away, and leaves a hook at the extremity of the remaining style, which now becomes a persistent awn to the hairy carpel. After germination the ovate head of carpels frequently becomes elevated above the calyx on a round peduncle, which has a very remarkable appearance.

Habitat.—Marshes, ditches, and wet places; frequent.

Perennial; flowering in June and July.

This species possesses similar properties, and is used for the same purposes as the last. It is frequently cultivated as a border flower, and often becomes double, in which state it is sometimes found wild. The remarkable variety, which is occasionally found, having small yellow petals similar to those of *G. urbanum*; but with all the other characters of the plant *G. rivale* seems to be an hybrid between the two. There are but few plants whose structure and economy seems less understood than this. The styles are at first short, and inclosed within the flower; but almost as soon as the flower is expanded, and the anthers have shed their pollen upon the stignas, the styles elongate apparently more from below the joint than above: at the same time the receptacle is frequently elevated above the now withering calyx and petals on a stalk, from half an inch to an inch long. Upon examining the elongated style with a strong magnifying power, the joint appears to be formed by the union of two hooks; the upper one of a much firmer texture than the lower, and often feathery; the lower is stouter, more cellular, and as the seeds become matured, the upper feathery part falls off at the joint, and leaves a hook at the extremity of the remaining portion, by which it attaches itself to the coats of animals, &c., and thus spreads itself for further increase by another means than that which it would seem to have lost in the feathery extremity, which seems only reserved until the seed is about ripe, and then by falling away leaves it better furnished with the means of becoming more generally distributed.

GENUS XII. FRAGARIA.—LINN. *Strawberry*.

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* ten cleft, five outer alternate segments, smaller patent. *Petals* five. *Carpels* numerous, small, inserted into a fleshy succulent *receptacle*. *Styles* lateral, deciduous.—Name from *fragrans*, *odorous*; in allusion to the fragrance of the fruit.

1. *F. vesca*, Linn. (Fig. 833.) *Wood Strawberry*. Calyx of the fruit reflexed; hairs of the stem and petioles widely spreading; those of the pedicles close pressed, silky.

English Botany, t. 1524.—English Flora, vol. ii. p. 415.—Hooker, British Flora, ed. 4. vol. i. p. 205.—Lindley, Synopsis, p. 95.

β. *atrovirens*, Lind. "Leaflets sessile, hairy, roundish, wedge-shaped, coarsely toothed; peduncles longer than the scapes; calyx as large as the corolla."

Lindley, Synopsis, p. 96.—English Botany, Supp. t. 2742.

Root somewhat woody, blackish, with numerous long slender branched fibres, and putting out several round long hairy trailing runners, which at various intervals put out roots, and form independent plants. *Stems* mostly several, from three to six inches high, round, simple, clothed with spreading hairs, and seldom bearing more than one or two leaves, often without, terminating in a somewhat cymose panicle. *Leaves* radical, with long channeled footstalks, clothed with spreading hairs, leaflets three, sessile, or nearly so, roundish ovate, wedge-shaped at the base, the lateral ones unequally so, coarsely and deeply serrated, smooth above, pale and silky beneath, and strongly ribbed, with parallel veins. *Stipules* membranous, brown, downy, lanceolate, with a long narrow point. *Flowers* white, erect, on round slender pedicles, clothed with close pressed silky hairs. *Calyx* spreading, reflexed in fruit, nearly as long as the roundish white petals. *Fruit* ovate, drooping, a fine scarlet colour, pulpy, gratefully acid, and pleasantly aromatic, studded over with smooth yellowish carpels.

Habitat.—Woods, banks, and thickets; common.

Perennial; flowering in May and June.

2. *F. elatior*, Ehrh. (Fig. 834.) *Hautboy Strawberry*. Calyx of the fruit reflexed; hairs of the stem, petioles, and pedicles, spreading or deflexed.

English Botany, t. 2197.—English Flora, vol. ii. p. 415.—Hooker, British Flora, ed. 4. vol. i. p. 206.—*F. moschata*, Duchesne.—Lindley, Synopsis, p. 96.

This species is similar to the last in habit and appearance, and is only distinguished from it by the hairs of the flower stalks being wide, spreading, and not close pressed, as in *F. vesca*. It is not an uncommon plant, but is a doubtful native, having probably escaped from gardens. It is frequent in the wood and shady places in almost all parts of Italy, especially in elevated situations.

Habitat.—Woods and groves in various parts of England, and near Cork, Ireland.

Perennial; flowering from June to September.

The Strawberry is a well known and much esteemed fruit, and has been long cultivated to a considerable extent in England, especially in the neighbourhood of London. A great number of different varieties



833

Fragaria vesca.



834

Fragaria elatior.



835

Comarum palustre.



836

Potentilla fruticosa.



837

Potentilla rupestris.



838

Potentilla anserina.

are now cultivated, which ripen their fruit at different periods of the summer, and, by management, the table may be supplied from the garden during the summer months, and with a little care and attention, together with the assistance of the hothouse, through all the months of the year.

Few fruits are of more easy cultivation than the Strawberry, most varieties requiring an open situation and a rich rather strong loamy soil, and until the fruit is set an abundant supply of moisture. It is usual to scatter round the plants a thin layer of straw, which is a means of preventing so great an evaporation of moisture from the roots, and keeps the fruit freer from sand and dirt, from the splashing of the rain; from this circumstance it is said to have derived its name of Strawberry.

As a fruit, few, if any, are more wholesome; it is not liable to turn acid on the stomach like some other kinds, and is excellent whether taken alone, or with sugar, cream, or wine, or, as it often is, in various ways made with sugar into conserves or sweetmeats.

GENUS XIII. CO'MARUM.—LINN. *Marsh Cinque-foil.*

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* ten cleft, five outer alternate segments, smaller patent. *Petals* five. *Carpels* numerous, small, inserted into a large dry spongy receptacle. *Styles* lateral, deciduous.—Name from *κομαρος*, a term applied by the ancients to some of the *Arbutus* tribe.

1. *C. palustris*, Linn. (Fig. 835.) *Purple Marsh Cinque-foil.*

English Botany, t. 172.—English Flora, vol. ii. p. 434.—Hooker, British Flora, ed. 4. vol. i. p. 206.—*Potentilla comarum*, Scop.—De Cand. Prod. 2. p. 583.—Lindley, Synopsis, p. 97.—*P. palustris*, Lehmann.

Root with long creeping underground stems, and long fibrous branches. *Stem* ascending, round, reddish, leafy, about a foot high, mostly branched and paniculated above, smooth below, downy above. *Leaves* pinnate, the lower ones on long footstalks, channeled, and much dilated at the base into a sheathing coriaceous stipule, the petioles of the upper leaves short, with stipules, ovate lanceolate, leaflets five to seven, sessile, or on very short stalks, oblong lanceolate, deeply and sharply serrated, green above and smooth, beneath pale, and more or less clothed with silky hairs. *Flowers* not very numerous, in terminal branched spreading panicles, each on a slender round long downy peduncle. *Calyx* ten cleft, the five outer alternate ones small, linear, the five larger ones ovate lanceolate, with a tapering point, a dark purplish red colour, as well as the small lanceolate petals. *Stamens*

numerous, with awl-shaped *filaments*, and roundish *anthers*, of two cells. *Fruit* a large roundish ovate spongy *receptacle*, thickly studded over with smooth compressed purple coloured *carpels*, notched on the under side for the insertion of the style.

Habitat.—Marshes and spongy bogs; frequent.

Perennial; flowering in June and July.

GENUS XIV. POTENTILLA. *Cinque-foil*.

Nat. Ord. ROSACEÆ. JUSS.

GEN. CHAR. *Calyx* eight or ten cleft, the four or five outer alternate segments smaller. *Petals* four or five. *Carpels* numerous, small, inserted into a small dry receptacle.—Name from *Potens*, *powerful*; in allusion to the qualities attributed to some of the species.

1. *Petals five*.

* *Leaves pinnate*.

1. *P. fruticosa*, Linn. (Fig. 836.) *Shrubby Cinque-foil*. Stem shrubby; leaves pinnate; leaflets mostly five, oblong lanceolate, entire; stipules membranous, lanceolate; receptacle very hairy.

English Botany, t. 88.—English Flora, vol. ii. p. 417.—Hooker, British Flora, ed. 4. vol. i. p. 207.—Lindley, Synopsis, p. 96.

Root strong, fibrous. *Shrub* much divided, bushy, from two to four feet high, round, with hard close grained wood, clothed with a brown cuticle, which falls off in long thin scales. *Leaves* numerous, pinnate. *Footstalks* channelled above, hairy, accompanied at the base with a pair of thin membranous lanceolate *stipules*, smooth and branched, with prominent veins, *leaflets* five to seven, oblong, lanceolate, the margins somewhat revolute, dark green above, paler, and finely reticulated with veins on the under side, and more or less abundantly clothed, especially beneath, with white shining silky hairs, the three terminal leaflets united at the base, and decurrent. *Flowers* in terminal small dichotomous panicles, large bright yellow. *Calyx* spreading in flower, closed in fruit, the outer segments small, linear lanceolate, the larger ovate lanceolate, sometimes cloven, thickly clothed at the base, as well as the shortish pedicles, with white silky hairs. *Petals* roundish, with a short claw. *Stamens* numerous, with linear *filaments*, and ovate tawny coloured *anthers*, of two cells. *Receptacle* small, hard, dry, thickly clothed with white shining bristly hairs. *Pericarps* seldom perfected, oblique, ovate, scattered over with hairs, and surrounded at the base with a ring of them.

Habitat.—Rare. Rocks and shady places; Middleton Teesdale, Yorkshire; Rock Forest, County of Clare; near Headford, County of Galway, Ireland.

Shrub; flowering in June.

This is a very pretty hardy shrub, commonly cultivated in gardens, and flowers freely for several months in the summer. Its leaves are said to be prepared and used as tea in some parts of Russia.

2. *P. rupestris*, Linn. (Fig. 837.) *Strawberry-flowered Cinque-foil*. Stem herbaceous, erect, dichotomous above; lower leaves pinnate, the upper ternate; leaflets ovate, sub-rotundate, unequally cut and serrated, hairy; stipules entire.

English Botany, t. 2058.—English Flora, vol. ii. p. 418.—Hooker, British Flora, ed. 4. vol. i. p. 206.—Lindley, Synopsis, p. 96.

Root somewhat woody, almost black, stout, long, tapering, with numerous fibrous branches. *Stem* about a foot high, erect, round, hairy, naked below, branched in a dichotomous manner above, and leafy. *Leaves* pinnate, with ovate roundish or ovate wedge-shaped leaflets, hairy and paler beneath, the margins more or less unequally cut and irregularly serrated, the radical leaves numerous, with a long common footstalk, downy and channeled above, with a pair of roundish ovate entire *stipules*, those of the upper nearly sessile, ternate, leaflets sometimes with one or two serratures. *Flowers* white, not very numerous, in terminal dichotomous panicles. *Pedicles* round, clothed with short close hairs, as well as the *calyx*, whose outer segments are small, linear, and the inner nearly as long again, ovate lanceolate, spreading both in flower and fruit. *Petals* rather large, roundish, heart-shaped, with a short claw. *Stamens* with awl-shaped *filaments* and ovate *anthers*, with a dark disk. *Fruit* a dry small receptacle, with numerous small kidney-shaped carpels.

Habitat.—Very rare; on Craig Breidhin, Montgomeryshire.

Perennial; flowering in June.

The flowers of this species bear a great resemblance to those of the Strawberry plants. It is sometimes cultivated as a border flower, but is not so showy a plant as many other species.

3. *P. anseri'na*, Linn. (Fig. 838.) *Silver Weed*. Stem creeping; leaves interruptedly pinnate; leaflets in numerous pairs, oblong, acutely serrated, silky; peduncles axillary, single flowered.

English Botany t. 861.—English Flora, vol. ii. p. 417.—Hooker, British Flora, ed. 4. vol. i. p. 206.—Lindley, Synopsis, p. 96.

β. sericea, Koch. Leaves white and silky on both sides.—Koch. Flora Germanicæ et Helveticæ, p. 213.

γ. concolor, Ser. De Cand. Prod. 3. p. 582.

δ. viridis, Koch. Leaves green on both sides, slightly hairy, or smooth above.

Koch. Flora Germanicæ et Helveticæ, p. 213.

Root tapering, somewhat fleshy. *Stems* several, long, round, slender, smooth, or clothed with silky hairs, jointed, and putting out leaves and flowers, and taking root at various intervals. *Leaves* mostly numerous, spreading, from three to six inches long, with a stout

silky common footstalk, with brown thin sheathing cut dry membranous *stipules* at the base. *Leaflets* in numerous oblong lanceolate opposite pairs, deeply and acute, serrated, the intermediate ones small, deeply cut, more or less clothed with white shining silky hairs, close pressed. *Flowers* solitary, axillary, the *peduncles* round, smooth, or silky, from one to two inches long, sometimes there are two flowers at the extremity of the peduncle, but seldom more than one perfected. *Calyx* silky, with the smaller segments often cut into awl-shaped teeth, the larger ovate, acute. *Petals* yellow, roundish ovate, with a short claw. *Stamens* with awl-shaped *filaments*, and rather large ovate *anthers*, of two cells. *Receptacle* silky. *Seeds* seldom perfected.

Habitat.—Moist meadows and road sides; common.

Perennial; flowering in June and July.

This is a very common and very variable plant in the appearance of its leaves and leaflets, from being very white and shining, from its clothing of silky hairs, or green and almost free from them. The roots have the flavour of parsnips, and being wholesome, they have been used as food by country people; they are much relished by hogs, as may be observed from the avidity with which they seek after them on the road sides and banks, and the leaves are a favourite food of geese, hence the name of *Goose-grass*.

** *Leaves digitate.*

4. *P. argen'tia*, Linn. (Fig. 839.) *Hoary Cinque-foil*. Stem ascending, or erect; leaves quinate; leaflets obovate, wedge-shaped, more or less pinnatifidly cut with revolute margins, white and tomentose beneath; stipules ovate, acuminate, entire, or toothed; flowers corymbose, numerous.

English Botany t. 89.—English Flora, vol. ii. p. 419.—Hooker, British Flora, ed. 4. vol. i. p. 206.—Lindley, Synopsis, p. 96.

β. *Guntheriana*, Serr. (Fig. 840.) Stem decumbent, paniculated, and spreading from the middle; leaflets obovate, wedge-shaped, deeply cut beneath, slightly tomentose.

De Cand. Prod. 3. p. 577.—*P. Guntheri*, Pohl. tent. Fl. Bohem. v. 2. p. 185.—Koch. Flora Germanicæ et Helveticæ, p. 214.—*P. argentea diffusa*, Wallr.

Root somewhat woody. *Stems* several, curved at the base, becoming erect, or nearly so, from six to eighteen inches high, round, leafy, and more or less thickly clothed with close soft woolliness, simple, and terminating in a corymbose inflorescence, or branched from the middle in a paniculated manner, the radical and lower *leaves* with long slender woolly footstalks, the *leaflets* five, obovate, wedge-shaped, more or less deeply cut into narrow lanceolate acute segments, which are sometimes serrated, the margins rolled back, green, and nearly smooth above, beneath more or less thickly clothed with white close soft woolliness, the upper leaves sessile, and often with only three leaflets.



839 *Potentilla argentea.*



840 *Potentilla argentea* v. *Guntheriana.*



841 *Potentilla verna.*



842 *Potentilla salisburgensis*



843 *Potentilla opaca:*



844 *Potentilla alba.*

Stipules ovate, with an attenuated point, entire, rarely toothed. *Flowers* small, yellow, mostly numerous. *Calyx* woolly, its segments nearly equal. *Petals* scarcely longer than the calyx, ovate, notched. *Receptacle* hairy, bearing numerous *carpels*, kidney-shaped, smooth, and even.

Habitat.—Dry banks, pastures, and road sides, especially in a gravelly soil. β . Middleton Teesdale, Yorkshire.

Perennial; flowering in June and July.

The variety β . *Guntherianna* is remarkable in the stem being longer, stouter, and more spreading, and much divided from the middle, or below that in a paniculated manner, and the leaflets are more deeply cut with narrower segments. We have some doubts of its being, however, more than a variety of *P. argentea*; and as such we have for the present followed De Candolle in retaining it, until further opportunities occur of observing its habit, &c.

5. *P. ver'na*, Linn. (Fig. 841) *Spring Cinque-foil*. Stem declining; root leaves with long hairy petioles; leaflets five or seven, obovate, wedge-shaped, acutely serrated or crenated, the terminal one shortest, furrowed with veins above, smooth or hairy, as well as the margins and under side; lower stipules linear, the upper ovate; carpels slightly rugose.

English Botany, t. 37.—English Flora, vol. ii. p. 421.—Hooker, British Flora, ed. 4. vol. i. p. 206.—Lindley, Synopsis, p. 97.

β . *pusilla*, Koch. Smaller, leaflets obovate, having only two serratures on each side the smaller terminal one.

Koch. Flora Germanicæ et Helveticæ, p. 217.—“*P. pusilla*, Host.”

Root long, branched, and woody, brown, scaly above, *Stems* mostly numerous, curved at the base, and spreading in a circular manner from two to four or six inches long, sometimes rooting, round, branched and clothed with silky hairs, spreading in the lower part, short and close above. *Leaves* numerous, the *radical* ones on long slender round hairy footstalks, *leaflets* five or seven, ovate, wedge-shaped, serrated above the middle, with four serratures on each side, and the terminal one shorter, the teeth acute, or obtuse, the outer leaflets mostly obliquely ovate, and more deeply serrated on the outer side, green on both sides, though darker on the upper, and furrowed with branched veins, mostly smooth above, or hairy, as well as the under side, which is mostly fringed on the margins and ribs with longer silky spreading hairs, the leaves in the lower part of the stem nearly sessile, of three narrower leaflets, in the upper part sessile, and mostly simple. *Stipules* united to the footstalk, the lower ones narrow, awl-shaped, the upper ovate. *Flowers* from three to six, on long round slender hairy pedicles, from the upper part of the stem. *Calyx* clothed with spreading hairs, its segments nearly equal. *Petals* bright yellow, as long or longer than the calyx, broadly cordate. *Receptacle* hairy. *Carpels* slightly wrinkled.

Habitat.—Dry pastures; Suffolk, Cambridgeshire, on St. Vincent's Rocks, Bristol, the North of England, Wales, and Scotland.

Perennial; flowering in April and May.

This is an extremely variable plant in size and hairiness; sometimes it is nearly smooth, or the leaves are smooth above, with a fringe of long silky or bristly hairs on the margins, and the ribs on the under side, or they are tomentose, as well as fringed with longer hairs, which we have from the South of France, and is the variety *δ. cinerea*, Ser. MSS. De Cand. Prod. 2. p. 576, the *P. cinerea*, Chaix. The leaflets vary in being more or less deeply serrated, and the serratures are rounded or acute, the terminal one is always shorter than the other, two or three on each side of it. The stipules, though usually linear on the radical leaves, and ovate above, are not unfrequently found ovate on the radical leaves, as well as those of the stem, and specimens frequently occur intermediate between these extremes: hence arises the difficulty to know where the characters of one species terminate and another begins; for between the extremes of this species and the characters of the following there appears so little difference that it would seem better to unite them into one, and this appears to be the opinion of Sir W. J. Hooker and Mr. W. Wilson. The Continental Botanists, however, not only make them different species, but they enumerate many varieties under each.

6. *P. salisburgensis*, Haenk. (Fig. 842) *Orange Alpine Cinque-foil*. "Stem prostrate, sometimes rooting, ascending, pubescent; radical leaves quinate; leaflets obovate, smooth, the margins and veins on the under side fringed with spreading hairs, the upper part deeply serrated, the teeth long, three on each side the nearly equal terminal one; stipules all ovate, the carpels slightly rugose."—Koch.

Koch. Flora Germanicæ et Helveticæ, p. 216.—*P. aurea*, Linn.—English Botany, t. 561.—De Cand. Prod. 2. p. 576.—*P. alpestris*, Hall. fil.—English Flora, vol. ii. p. 419.—Hooker, British Flora, ed. 4. vol. i. p. 206.—Lindley, Synopsis, p. 96.

Habitat.—Mountains in the North of England, Wales, and the Breadalbane and Clove Mountains, Scotland.

Perennial; flowering in June and July.

7. *P. opa'ca*, Linn. (Fig. 843.) *Saw-leaved hairy Cinque-foil*. Stems hairy, recumbent, often rooting; radical leaves petiolate, with seven linear wedge-shaped leaflets, deeply serrated to the base, the terminal tooth much the shortest; stem leaves sessile, or nearly so, with three leaflets; stipules oblong, lanceolate; carpels more or less rugose.

English Botany, t. 2449.—English Flora, vol. ii. p. 423.—Hooker, British Flora, ed. 4. vol. i. p. 207.—Lindley, Synopsis, p. 97.

Root long, woody, branched, almost black, bearing numerous stems, prostrate, and sometimes rooting, becoming erect, round, branched,

leafy, and more or less clothed with long horizontal hairs. *Root-leaves* numerous, with long petioles, hairy, leaflets seven, linear, wedge-shaped, deeply and distantly serrated to near the base, dark green, paler beneath, scattered over with hairs, the terminal tooth much shorter than the others, the *stem-leaves* sessile, on short stalks, ternate. *Stipules* all oblong, lanceolate, the radical ones thin, brown, membranous. *Flowers* mostly numerous, axillary, and in terminal panicles, the stalks long, round, slender, hairy. *Calyx* hairy, the outer alternate segments linear, as long as the inner ovate ones. *Petals* broad, heart-shaped, yellow, orange colour towards the base. *Carpels* smooth, or more or less rugose.

Habitat.—Hills of Clove and Braes of Balquidder, Scotland.—*Mr. D. Don*.

Perennial; flowering in June.

This species is distinguished from *P. verna* by its stouter habit, and the leaflets coarsely serrated to near the base. It is not unfrequent on the mountains of Switzerland and France.

8. *P. al'ba*, Linn. (Fig. 844.) *White Cinque-foil*. Stem slender procumbent; radical leaves with five oblong leaflets, silky beneath, and serrated towards the apex, with slender incurved teeth; carpels smooth.

English Botany, t. 1384.—English Flora, vol. ii. p. 423.—Hooker, British Flora, ed. 4. vol. i. p. 207.—Lindley, Synopsis, p. 97.

Root long, woody, branched, almost black. *Stems* several, slender, filiform, procumbent, somewhat branched and leafy, clothed with slender spreading hairs. *Root-leaves* numerous, with long slender hairy footstalks, leaflets five, oblong lanceolate, tapering towards the base smooth and green above, white and silky beneath, with close shining hairs, the margin serrated towards the point, with slender incurved teeth, the *stem-leaves* with a short footstalk, and three narrow oblong leaflets. *Stipules* oblong lanceolate, with an attenuated point. *Flowers* seldom more than three or four, with slender peduncles. *Calyx* hairy the outer segments linear, shorter than the inner lanceolate ones. *Petals* white, oblong, heart-shaped, yellow at the base. *Receptacle* hairy. *Carpels* slightly rugose.

Habitat.—Wales (?) *Mr. Haviland* (Hudson).

Perennial; flowering in June and July.

This elegant little plant, we fear, has but slender claims to a place in our British Flora, as it does not appear to have been found since Hudson's time. It occurs on the mountains of Switzerland and Germany, but not very common.

9. *P. reptans*, Linn. (Fig. 845.) *Common Creeping Cinque-foil*. Stem filiform, creeping, round, simple, rooting; leaves quinate; leaflets oblong, wedge-shaped, deeply serrated, three toothed at the extremity hairs close pressed; peduncles solitary, axillary.

English Botany, t. 862.—English Flora, vol. ii. p. 424.—Hooker, British Flora, ed. 4. vol. i. p. 207.—Lindley, Synopsis, p. 97.

Root tapering, branched, bearing several prostrate creeping *stems*, long, round, slender, cord-like, smooth, or scattered over with close pressed hairs, rooting from the joints at various intervals, and putting out several leaves and simple lanceolate *stipules*. *Leaves* with long slender channeled footstalks, bearing five oblong wedge-shaped leaflets, deeply serrated, the apex three toothed, green above, paler beneath, and clothed more or less thickly with close pressed hairs, the upper surface nearly smooth. *Flowers* a bright yellow, rather large, solitary, on a long round slender scarcely hairy *peduncle*, erect. *Calyx* with nearly equal hairy spreading segments. *Petals* broadly heart-shaped, with a short claw, about as long or longer than the calyx. *Receptacle* hairy. *Carpels* numerous, small, pale brown, kidney-shaped, roughish.

Habitat.—Meadows, pastures, banks, and road sides; frequent.

Perennial; flowering from June to August.

This is a variable plant in its hairiness, the length of the stems, and the size of its leaves, which depends upon the more or less humid soil in which it has grown. The leaves are sometimes doubly serrated in the upper part, and the stipules deeply cut. The roots have been long esteemed as a febrifuge, from the tonic and astringent principles which they possess; and by the ancients were variously used in cases of fever, and were applied to wounds and ulcers to suppress hæmorrhage or astringe the parts; since, however, other and more powerful productions have become known it has gone almost out of use. Besides the purposes of medicine, it has been used in the process of tanning, but for this purpose also it is now much neglected: the leaves, either fresh or when dried, are still esteemed in some of our country districts when made into tea, as a very useful drink in all cases where there is heat or feverishness, as it is said to "purge and purify the blood."

*** *Leaves ternate.*

10. *P. tridentata*, Solander. (Fig. 846.) *Three-toothed Cinque-foil*. Stem ascending, paniculated; leaves ternate; leaflets obovate, wedge-shaped, three toothed at the apex, coriaceous, smooth above, hairy beneath; petals oblong, longer than the calyx; carpels with a tuft of hairs on the top.

English Botany, t. 2389.—English Flora, vol. ii. p. 425.—Hooker, British Flora, ed. 4. vol. i. p. 207.—Lindley, Synopsis, p. 97.

Root woody, with fibrous branches, dark brown. *Stems* several, herbaceous, curved at the base, becoming erect, from three to six inches high, round, hairy, branched upwards in somewhat dichotomous manner. *Leaves* ternate, the lower ones on channeled footstalks, hairy, the upper ones sessile, or nearly so, leaflets obovate, wedge-shaped, of a leathery texture, the apex three, sometimes five toothed, otherwise entire, smooth above, paler and hairy beneath. *Stipules*



845

Potentilla reptans.



846

Potentilla tridentata.



847

Potentilla fragariastrum.



848

Potentilla tormentilla.



849

Potentilla nemoralis.

lanceolate, with a long narrow point, the upper ones often cut. *Flowers* few, white, on round short *pedicles*, hairy. *Calyx* hairy, the intermediate segments smaller than the inner ovate acute ones. *Petals* oblong, entire, longer than the calyx. *Receptacle* hairy. *Carpels* smooth, with a tuft of white hairs towards the apex.

Habitat.—Werron Hill Clove, Scotland.—*Mr. G. Don*.

Perennial; flowering in May and June.

This remarkable species appears only to have been found in the station above given. It is, according to De Candolle, found also in Canada and Greenland.

11. *P. Fragari'astrum*, Ehrh. (Fig. 847) *Strawberry-leaved Cinquefoil*. Stem filiform, procumbent; leaves ternate; leaflets roundish ovate, deeply serrated, silky; stipules broadly ovate, acute, membranous; petals obcordate, as long or longer than the calyx; carpels smooth, villous at the base.

English Flora, vol. ii. p. 425.—Hooker, British Flora, ed. 4. vol. i. p. 207.—Lindley, Synopsis, p. 97.—*P. fragaria*, Poir.—De Cand. Prod. 2. p. 585.—*Fragaria sterilis*, Linn.—English Botany, t. 1785.

Root woody, tapering, branched. *Stems* several, round, slender, short, procumbent, the barren creeping ones leafy, not very long. *Leaves* numerous, the lower and radical ones with rather long slender footstalks, clothed like the stem with long silky spreading hairs, *leaflets* three, roundish ovate, deeply serrated, dark green, and scattered over with hairs above, paler and silky on the under side, with close pressed hairs, the middle leaflet is mostly the largest, and the terminal tooth is smaller than the others of all the leaflets. *Stipules* brown, thin, membranous, ovate, acute, or with a lanceolate point. *Flowers* seldom more than two, white, on round slender peduncles, hairy, as well as the unequal ovate *calyx* segments. *Petals* obcordate, mostly about as long as the calyx, sometimes longer. *Receptacle* hairy. *Carpels* pale, kidney-shaped, smooth, with a few white hairs at the base.

Habitat.—Woods, banks, and dry pastures; frequent.

Perennial; flowering in March and April.

The general appearance of this species is that of a *Fragaria*, but its small dry receptacle at once distinguishes it from that genus. It is an interesting plant, as showing how gradual are the links in the chain of connection observable in the works of nature.

2. *Petals four*.

12. *P. Tormentilla*, Sibth. (Fig. 848.) *Common Tormentil*. Stem ascending, dichotomous; leaves sessile; leaflets three, oblong, wedge-shaped, deeply serrated; stipules deeply cut.

Lindley, Synopsis, p. 98.—De Candolle, Prod. 2. p. 574.—*Tormentilla officinalis*, Sm.—English Botany, t. 863.—English Flora, vol. ii. p. 428.—Hooker, British Flora, ed. 4. vol. i. p. 208.—*T. erecta*, Linn.

Root large, thick, tapering, woody. *Stem* round, slender, wiry, curved at the base, becoming erect, smooth or scattered over with silky hairs, branched in a dichotomous manner above. *Leaves* alternate, sessile, of three spreading *leaflets*, narrow, oblong, wedge-shaped, or lanceolate wedge-shaped, deeply cut in a serrated manner in the upper half, with spreading lanceolate teeth, of a dark green above, paler beneath, with prominent ribs, and more or less scattered over with close pressed silky hairs. *Flowers* mostly numerous, solitary, on slender peduncles, terminating the stem, and from the axis of the divarications. *Calyx* with four smaller and four larger lanceolate spreading segments, sometimes there are five of each. *Petals* four or five, broadly heart-shaped, longer than the calyx. *Receptacle* small, hairy, bearing a few smooth pale somewhat kidney-shaped *carpels*, slightly rugose.

Habitat.—Moors and bleak heathy places; common.

Perennial; flowering in June and July.

This is a variable plant in appearance, but constant in its specific character. It mostly produces a considerable number of flowers, and is erect from the curved base, or much branched and spreading when grown in dry sandy situations, forming straggling tufts by its slender entangled branches.

The roots have a slight aromatic odour, with an austere stiptic taste, black externally, and reddish within, and containing more tanning principle than almost any other known vegetable; they are used in the Hebrides and Orkney Islands for the purpose of tanning leather. The roots bruised and boiled in water, to which it yields its principle, have long been used as a remedy in intermittent fevers and diarrhœas, and as well as in relaxed sore throat, spongy gums, or ulcers of the tongue and mouth, in which cases it is still applied beneficially by the country people, but otherwise it is now much neglected.

13. *P. nemo'ralis*, Nestl. (Fig. 849.) *Trailing Tormentil*. Stem procumbent, scarcely branched; leaves petiolated; leaflets three, or five, obovate, wedge-shaped, deeply serrated; stipules simple, or two or three cleft.

Lindley, Synopsis, p. 98.—*P. Tormentilla*, *ε. nemoralis*, Ser.—De Cand. Prod. 2. p. 574.—*P. procumbens*, Sibth.—*Tormentilla reptans*, Linn.—English Botany, t. 864.—English Flora, vol. ii. p. 429.—Hooker, British Flora, ed. 4. vol. i. p. 208.

Root small, branched, slender, woody. *Stem* round, slender, wiry, prostrate or ascending, slightly branched, and more or less clothed with silky close pressed hairs. *Leaves* alternate, on channeled hairy foot-stalks, from half an inch to an inch long, *leaflets* on the lower ones, sometimes five, the upper three ovate wedge-shaped, deeply serrated, dark green above, paler beneath, and almost smooth, or more or less clothed with close pressed hairs, especially on the mid-rib and prominent veins. *Stipules* simple, linear lanceolate, or one or two

toothed. *Flowers* bright yellow, larger than the last, on long slender downy axillary and terminal *pedicles*, the *calyx* of eight or ten lanceolate segments, the outer ones smallest. *Petals* roundish, heart-shaped, as long or longer than the calyx, four or five. *Receptacle* small, dry, hairy, bearing a few pale smooth kidney-shaped *carpels*, slightly rugose.

Habitat.—Banks, fields, and waste places; less frequent than the last.

Perennial; flowering in June and July.

This is distinguished from the last species by its petiolated leaves, its entire or sparingly cut stipules, and the flowers are almost as large again. From *P. reptans*, with which it is sometimes confounded, it is distinguished by its less creeping shorter and not rooting stems, its leaves being solitary, and not several from the joints, as in that species; its flowers are smaller and terminal, as well as axillary, and its carpels are smooth and slightly rugose, and not rough, as are those of *P. reptans*.

CLASS XIII. POLYANDRIA.

(Many Stamens inserted upon the Receptacle.)

ORDER I.

MONOGYN'IA. 1 Pistil.

GENUS I. PAPA'VER.—LINN. Poppy.

Nat. Ord. PAPAVERA'CEÆ. JUSS.

GEN. CHAR. *Calyx* of two caducous pieces. *Petals* four. *Stigma* sessile, radiated with from four to twenty rays. *Capsule* superior, of from four to twenty imperfect cells, formed by projecting receptacles beneath the stigmas. *Seeds* numerous, small, escaping by pores beneath the persistent stigmas.—Name, according to Theis, derived from the Celtic word *papa*, which signifies *pap*, or the soft pulpy food given the children, in which the seeds of the poppy were formerly boiled, to make the children sleep.

* *Capsule* hispid.

1. *P. Argem'one*, Linn. (Fig. 850.) *Long Prickly-headed Poppy*. Stamens with the filaments dilated upwards; capsule club-shaped, ribbed, and bristly; stem leafy, many flowered; leaves bi-pinnatifid.

English Botany, t. 643.—English Flora, vol. iii. p. 10.—Hooker, British Flora, ed. 4. p. 211.—Lindley, Synopsis, p. 16.

Root small, tapering. *Stem* erect, slender, round, branched, leafy, scattered over with white somewhat spreading bristles. *Leaves* alternate, spreading, the radical ones on long slender channeled footstalks, those of the stem sessile, bi-pinnate, with narrow cut segments, the margins mostly rolled back, and generally smooth above, beneath paler, and furnished with a few stout bristles. *Flowers* solitary, terminating the branches, small, and very fugacious. *Calyx* concave, bristly. *Petals* obovate, mostly crumpled, and often jagged, of a pale or dull scarlet colour, with an almost black unequal spot at the base. *Stamens* purple, with ovate two celled *anthers*, the *filaments* slender at the base, dilated upwards, and acutely contracted into a slender point. *Stigma* with from four to six rays. *Capsule* narrow, dilated upwards into a club-shape, and from four to six angled, bristly, especially towards the top.

Habitat.—Corn fields in a gravelly soil; not unfrequent.

Annual; flowering in June.

This is a variable plant as to size, and the greater or less bristliness of its stems and leaves. Specimens are occasionally found near the sea with only one flower, which is the *P. maritima*, of Withering, but is only a starved state of the plant.

2. *P. hybridum*, Linn. (Fig. 851.) *Round rough-headed Poppy*. Stamens with the filaments dilated upwards; capsule sub-globose, clothed with curved spreading bristles; stem leafy, many flowered; leaves bi-pinnatifid.

English, Botany t. 43.—English Flora, vol. iii. p. 9.—Hooker, British Flora, ed. 4. vol. i. p. 212.—Lindley, Synopsis, p. 16.

Root tapering, branched. *Stem* erect, more or less branched and leafy, round, or obtusely angular, rough, with bristles, spreading below, close pressed upwards. *Leaves* alternate, the lower and radical ones on long slender bristly footstalks, bi-pinnatifid, of a dark green colour, with linear segments, rolled back on the margins, and pointed with a short bristle, paler beneath, and rougher than the upper surface. *Flowers* solitary, terminating the branches, small, of a deep scarlet or crimson colour, mostly with a violet spot at the base, very fugacious. *Calyx* with ovate concave bristly segments. *Petals* broadly obovate, crumpled, and sometimes cut on the margins. *Stamens* purple, with ovate *anthers*, the *filaments* dilated upwards from a slender base, and terminating in an acute point. *Stigmas* from five to eight, slightly elevated above the *capsule*, which is sub-globose, small, clothed with stout tapering bristles, curved upwards, and somewhat spreading.

Habitat.—Sandy and chalky fields; not common. In Norfolk, Durham, Cornwall, Kent, Essex, and Nottinghamshire. Ireland, near Kilbarrick Church, and Baldoyle.

Annual; flowering in July.

On the Continent as with us this is not a common plant, and, like the last species, is variable, in being more or less branched, and in the



850 *Papaver argemone.*



851 *Papaver hybridum.*



852 *Papaver dubium.*



853 *Papaver Rhœas.*



854 *Papaver Rhœas v. lobatum.*



855 *Papaver somniferum.*

greater or less roughness of the stem and leaves, from its clothing of rigid bristles.

**** Capsules smooth.**

3. *P. du'bium*, Linn. (Fig. 852.) *Long smooth-headed Poppy*. Capsule oblong, smooth; filaments subulate; stem hispid, many flowered; leaves bi-pinnate, with linear remotely toothed segments.

English Botany, t. 664.—English Flora, vol. iii. p. 10.—Hooker, British Flora, ed. 4. vol. i. p. 212.—Lindley, Synopsis, p. 17.

Root tapering. *Stem* erect, branched and leafy, round, clothed with spreading hairs. *Leaves* numerous, bi-pinnatifid, the radical ones with channeled footstalks, the segments oblong, acute, with broad acute teeth, those of the stem sessile, with narrower segments and lanceolate teeth, somewhat paler on the under side, and scattered over with slender spreading hairs. *Flowers* mostly numerous, on long *peduncles*, clothed with pale close pressed bristles. *Calyx* ovate, concave, scattered over with long spreading hairs. *Petals* rather large, broader than long, of a light scarlet colour, creased, and mostly crenated on the margin. *Stamens* with linear subulate *filaments*, and ovate two celled *anthers*, with yellow *pollen*. *Stigmas* from six to eight rays, crenated on the margin. *Capsule* oblong, wedge-shaped, narrow, smooth, with as many ribs as there are rays of the stigma. *Seeds* numerous.

Habitat.—Cultivated fields; not unfrequent.

Annual; flowering in June and July.

This seems to be an intermediate species between the *P. argemone* and the following species, and the shape of the capsule is the only character by which it is rendered perfectly distinct from either one or the other. From *P. argemone* it differs in being smooth, and not bristly; and from *P. Rhæas* in its narrow wedge-shaped not globular form. The segments of the leaves are so variable in their shape in both species, as well as the close pressed or spreading hairs of the stem and peduncles, as to render them characters of no dependence; indeed, it is not uncommon to find on the Continent this species almost smooth.

4. *P. Rhæas*, Linn. (Fig. 853.) *Common Red Poppy, or Corn Rose*. Capsule globose, smooth; filaments subulate; stem hispid, many flowered; leaves pinnate, or bi-pinnate, with oblong lanceolate cut or toothed segments.

English Botany, t. 645.—English Flora, vol. iii. p. 11.—Hooker, British Flora, ed. 4. vol. i. p. 212.—Lindley, Synopsis, p. 17.

β. *strigosum*, Bonningh. Peduncles with close pressed hairs.—*P. Rhæas*, β. *Strigosum*, Bonningh.

γ. *lobatum*. (Fig. 854.) Leaves pinnated, with linear lobes, the lateral ones entire, or rarely toothed, the terminal one long, linear lanceolate, unequally dentato-serrated.

Root tapering. *Stem* branched, erect, or spreading, from two to three feet high, round, or obtusely angular, and more or less clothed

with stout tapering spreading hairs. *Leaves* numerous, the lower ones on longish footstalks, dilated at the base, the upper ones sessile, pinnate, with linear toothed or entire lobes, or bi-pinnated, with the lobes deeply divided, and simple or toothed, paler on the under side, and scattered over with spreading stout hairs, the teeth with a mucronate point. *Flowers* mostly numerous, on long *peduncles*, clothed with horizontal spreading or close pressed bristles. *Calyx* with ovate concave sepals, clothed more or less thickly with spreading bristles. *Petals* large, broad, spreading, of a deep rich scarlet colour, often with a black patch at the base, creased, and mostly crenated or waved on the margin. *Stamens* purple, with awl-shaped *filaments*, and oblong two celled *anthers*, with yellow *pollen*. *Stigmas* from ten to twelve rays, the margins of the lobes incumbent. *Capsule* smooth, glaucous when young, ovate, globose, many seeded.

Habitat.—Cultivated fields; very common.

Annual; flowering in June and July.

The varieties of this species are very perplexing to the student, from the circumstance of the leaves varying so greatly in the divisions of their segments, and the hairs of the peduncles varying from being close pressed to standing at right angles with the peduncles; the smooth globular abrupt capsule, however, readily distinguished it from all other of our species.

The variety *γ. lobatum* is a very remarkable one, which we were at first inclined to think a distinct species, and perhaps may, indeed, upon further observation prove so. The leaves are remarkable in being sparingly divided into narrow spreading lobes at the base only, and these are entire, or distantly lobed or toothed, while the terminal lobe is linear lanceolate, long, and unequally toothed; the margin is recurved, and the upper and under surfaces are rough, with short hairs. The stem is more or less thickly clothed with spreading hairs, tinged with purple, as are those of the peduncles and calyx; but on the peduncles they are not close pressed nor yet horizontal, but partly spreading.

We have specimens collected some years since in corn fields about Sheffield, and we have met with the same plant last summer in similar situations on the hills at the Bagni di Lucca, Italy.

By cultivation many beautiful varieties of this species are obtained, both double and semi-double, and of various shades, from rose colour to white, and not unfrequently variegated.

The beautiful red colour of the petals of the wild plant is readily imparted to water, on which account it is made with sugar into a syrup, and used for the purpose of colouring other medicines; for although it, like all other of the same genus, possesses narcotic properties, they are in this preparation so minute in proportion as not to enter into any consideration as a medicine.

The colouring matter which exists in the petals of so many flowers, and renders them such distinguished objects of cultivation, has not

hitherto been fully investigated by chemists. It, however, has been remarked that all flowers do not equally impart their colours to water, nor does the expressed juice equally retain its colour, for that of most red flowers is changed to blue by expression; hence it is inferred that there is the escape of some acid, which is doubtless carbonic: if an acid is added to the juice thus changed, it immediately becomes its original colour. The well known deep blue colour of the violet is, when expressed, changed red, by the addition of acids and by that of alkalies, and then carbonates, first green and then yellow, the reason of which seems to be, that a green colour is owing to a mixture of blue and yellow. This same kind of colouring matter is found in many other plants besides the violet, as the lavender, the hyacinth, &c., and rendered red by the presence of an acid; it is found in the petals of the rose, clover, hollyhock, and numerous others. So fugitive, however, is the red colour in some plants, that upon simply bruising the outer skin the red is changed into a blue colour, as may be familiarly known to many persons in the red cabbage, or the rind of the roots of the common garden radish, which, upon being bruised, impart to water a blue colour, but which is changed to red by the addition of acids. Schubler considers the *red*, *orange red*, *orange*, and *yellowish green* colour of flowers, to be owing to the absorption of oxygen; the *blueish green*, *blue*, *violet-blue*, *violet-red*, and *red* colours, to be owing to disoxygenization.

These remarks may, perhaps, lead the florist and cultivator of flowers to the consideration of how far by the use of different soils and dressings he may be enabled to produce more beautiful and splendid colours in his flowers, and effect those changes which he desires in them with a greater degree of certainty than at present; by the use of those dressings which are known to possess much carbonic acid gas, as the decomposition of vegetable matters, he may improve and produce finer red colours, while if he used animal matters as a dressing in which alkalies are formed, he may not expect to improve, but rather detract from the brilliancy of red colours, but will improve blue or purple flowers. To these hints, however, we must for the present confine our remarks; it is, nevertheless, an extremely interesting investigation: and perhaps as vegetable chemistry becomes better understood much valuable information will be elicited for the agriculturist.

5. *P. somniferum*, Linn. (Fig. 855.) *White Poppy*. Glaucous capsule globose, smooth; filaments dilated upwards; leaves oblong, unequally toothed, the upper cordate at the base, and amplexicaul, the lower ones tapering.

English Botany, t. 2145.—English Flora, vol. iii. p. 11.—Hooker, British Flora, ed. 4. vol. i. p. 214.—Lindley, Synopsis, p. 17.

Root tapering. *Stem* erect, from three to four feet high, more or less branched and leafy, of a glaucous green, smooth, sometimes scattered over with a few distant hairs. *Leaves* numerous, a smooth

glaucous green, large, oblong, those of the stem sessile, with a cordate base, embracing the stem, and unequally toothed, those towards the base and the radical ones tapering in the lower part, unequally lobed, often cut, and irregularly toothed. *Flowers* terminal, drooping in the bud, erect when blown, large, mostly of a bluish white, with a rather large dark purplish black spot at the base of each of the four broadly ovate *petals*, somewhat creased and waved on the margin. *Calyx* quite smooth, ovate, concave. *Stamens* with long *filaments*, somewhat dilated upwards, and bearing oblong two celled *anthers*, of two cells, with yellow pollen. *Stigmas* of numerous rays, deeply lobed and waved on the thin membranous margin. *Capsule* globose, large, quite smooth, of a glaucous green. *Seeds* very numerous, oily, with a sweetish flavour.

Habitat.—Fields and hedges in the Southern Counties of England, where the plant was formerly cultivated, and now become naturalized.

Annual; flowering in June and July.

By cultivation the flowers become of various colours, and also semi-double or double; they are very showy, but exhale an unpleasant odour, which to some persons is extremely unpleasant and productive of head-ache, and sometimes a degree of faintness.

The white Poppy is found apparently wild with us, as well as in almost all parts of the South of Europe. It would seem to be in these countries, however, a naturalized plant, and to have been originally a native of Asia, and has gradually become thus extensively distributed, on account of the medicinal virtues of the capsules and the usefulness of the seeds.

The whole plant, with the exception of the seeds, abounds with a milky fluid, which escapes upon rupturing any part of it; but is more abundant in the capsule than any other part of the plant, and for the capsules alone is the Poppy cultivated in this country and the Continent. They are gathered as they ripen, and sold to the druggists in bags, containing about 3,000 capsules each. Attempts have been made to cultivate them for the purpose of making opium, but it was found that it could be bought at a cheaper rate from the Levant, &c. than it could be grown with us. The dried capsules are used for the making an extract, which is thought to be advantageously used in the place of opium in some diseases; but their chief use is for making fomentations, poultices, &c. for the relief of local inflammations, &c. The seeds which they contain are extremely numerous, each capsule upon an average is said to produce about 32,000! They abound with a bland sweet oil, of a nutty flavour, which is expressed and used for domestic purposes as a substitute for olive oil. The seeds of this, as well as other species of Poppy, are said to be used in Poland and some parts of Russia as an ingredient in soup, for the making of gruel, and other domestic porridges; but the principal use of the Poppy is for the valuable secretion which is collected from the capsules of this and

probably some other species, known by the name of opium; incisions are made in the capsules a short time before they are ripe, from which the juices exude: this is collected, and as it dries forms a dark coloured solid mass, which is brought to this country in chests from Turkey and India, in masses covered with the petals of the Poppy, portions of the capsules, and often with the seeds of a kind of rumex, and it is not unfrequently adulterated with the leaves and extracts of other plants.

Opium, so called from the Greek word *οπιον*, *opion*, from *opos*, a juice; and Dr. Thomson says, in tracing the origin of the name opium, we find that the ancient inhabitants of India and of Egypt and the Arabians, called the inspissated juice of the capsule of the Poppy *affion*; the Persians, *afium*, or *abe-on*; the Moors, *affium*; and by the modern Turks it is *affioni*. It appears to have been known to the ancients; as both Theophrastus and Dioscorides, and also Pliny, mention it under the name of *opion*; but they seem to have prepared it from the inspissated decoction of the capsules. They were, however, acquainted with its soporiferous effects, and with its poisonous properties, when taken in too large a dose. Paracelsus appears to be the first among modern physicians who brought it into notice as a medicine, and he was the first to give the liquid form of opium the name of *laudanum*.

Opium has a peculiar narcotic odour, which to most persons is very disagreeable; its taste is very bitter, and somewhat acrid, of a compact texture, and of a reddish brown or fawn colour. It varies very much in its qualities, and is one of the most complicated vegetable extracts with which we are acquainted, or perhaps from its importance as a medicine, greater attention has been paid to its analysis than any other of our vegetable products; and we enumerate its ingredients to, in some measure, illustrate the difficulties there are to encounter in vegetable chemistry. The process of separating and of obtaining these substances is too long to be inserted here, the enumeration of one of the qualities of Smyrna opium as given by M. Mulder must suffice.

Narcotina	7.702	Resine.....	2.208
Morphina	2.842	Gummy extract.....	22.606
Codeina	0.858	Gum	2.998
Narceina.....	9.908	Mucus.....	18.496
Mecconin	1.380	Water.....	13.044
Mecconic acid.....	7.252		
Fat	4.204		97.252
Caoutchouc	3.754		

Opium and its preparations are more generally used than any other medicine, and as an article of commerce it is of very considerable importance; for the use of opium is not now limited to the doses prescribed by the physicians: we apprehend its abuse, as a stimulant, is much more frequent amongst all classes of society than is generally supposed. The effects of opium, by whatever mode it is introduced into the system, appears by numberless experiments to act upon the

nervous system; and from the investigations of *M. Charret* it is poisonous to all classes of animals, and that it produces three leading effects. 1. It acts on the brain, causing congestion, and consequent sopor. 2. On the general nervous centre as an irritant, producing convulsions; and 3. On the muscles as a direct sedative. A small dose of opium in many persons is stimulating, producing an increased action of the heart and arteries, and a slight sense of fullness in the head. As a stimulus, however, it acts very differently in different individuals, and when administered in poisonous doses it causes giddiness and stupor; but rarely in such cases produces any previous stimulus: the stupor increases, loss of motion and insensibility shortly follow, breathing is more slowly performed, the pupils are contracted, and the expression of the countenance is that of deep repose, but in a few hours it becomes pale and ghastly, the features are contracted, the muscles of the whole frame greatly relaxed, the pulse is feeble, becoming imperceptible, and death ends the scene, unless timely assistance is procured, and the opium removed from the stomach by means of the stomach-pump, or emetics, of which the sulphate of zinc in doses of half a drachm or two scruples, and repeated at intervals, if needful, after which the patient must be kept constantly roused by moving him about between two men, and occasionally dashing cold water upon the head and breast, or injecting it into the ears. The occasional use of ammonia applied to the nose, or other stimulants, and taken internally in small doses, or camphor, &c., are all useful when judiciously administered; infusion of coffee and lemon juice have both been found useful after the opium has been entirely removed from the stomach. For a full account of opium, the symptoms produced by its use, antidotes, tests, &c., we must refer to Dr. Christison's Treatise on Poisons, the London Dispensatory, &c.

GENUS II. MECANOPSIS.—VIGUIER. *Welsh Poppy*.

Nat. Ord. PAPAVERACEÆ. DE CAND.

GEN. CHAR. *Calyx* of two caducous pieces. *Petals* four. *Stigma* slightly elevated, of few rays. *Capsule* opening at the top, by from four to six valves. *Seeds* numerous, small, attached to filiform *receptacles*.—Named from *μηκων*, a *Poppy*; and *οψις*, *resemblance*; from its resemblance to the *Poppy*.

1. *M. Cambrica*, Vig. (Fig. 856.) *Common Welsh Poppy*. Capsule smooth; leaves pinnated, cut, mostly petiolated.

De Cand. Prod. 1. p. 120.—Hooker, British Flora, ed. 4. vol. i. p. 212.—Lindley, Synopsis, p. 17.—*Papaver cambricum*, Linn.—English Botany, t. 66.—English Flora, vol. iii. p. 12.

Root tapering, branched. *Stem* erect, from one to two feet high, round, simple, or branched, leafy, smooth, or scattered over with a few



856 *Mecanopsis Cambrica.*



857 *Glaucium luteum.*



858 *Glaucium corniculatum.*



859 *Glaucium violaceum.*



860 *Chelidonium majus.*



861 *Actaea spicata.*

hairs. *Leaves* of a light somewhat glaucous green, paler beneath, abounding with a lemon-coloured juice, all petiolated, pinnated, with ovate oblong or lanceolate segments, cut into unequal lobes and serratures, smooth, or scattered over with slender hairs. *Flowers* terminal, solitary, on a long slender pedicle, slightly hairy, as well as the ovate concave *calyx* sepals, which fall away when the flower expands. *Petals* broadly ovate, of a beautiful lemon colour, crumpled and waved on the margin. *Stamens* numerous, with awl-shaped *filaments* and oblong two celled *anthers*, the *style* short, with from four to six rayed *stigma*, convex, and free. *Capsule* elliptic, oblong, smooth, glaucous, with as many ribs as there are stigmas, and opening at the top by from four to six valves. *Seeds* very numerous, small, attached to lateral membranous scarcely projecting placenta.

Habitat.—Rock and shady places, rare; various parts of North Wales and Westmoreland; foot of Lidford cascade, Devonshire; Cheddar rocks, Somersetshire; about Edinburgh rocks, Rostrevor hill, cliffs of Ben Bulbin; and Clifdon, Cunnamara, Ireland.

Perennial; flowering in June.

This genus, of which there are only two or three other species known besides the present, is, according to De Candolle, intermediate between the *Papaver* and *Argemone*, only one species of which, the *A. mexicanum* is known, which is called by the natives *figo del inferno*, or Devil's Fig of Mexico.

GENUS III. GLAU'CIUM.—TOURN. *Horned Poppy*.

Nat. Ord. PAPAVERACEÆ. DE CAND.

GEN. CHAR. *Calyx* of two caducous pieces. *Petals* four. *Stigma* two lobed. *Capsule* a long linear two celled two valved pod. *Seeds* numerous, dotted, attached to an inter-valvular receptacle.—Named from *glaucus*, sea-green; from the hue of the green parts of the plant.

1. *G. luteum*, Scopoli. (Fig. 857.) *Yellow Horned Poppy*. Pod minutely tuberculated; stem smooth; stem-leaves lobed and cut, cordate at the base, amplexicaul.

English Flora, vol. iii. p. 6.—Hooker, British Flora, ed. 4. vol. i. p. 212.—Lindley, Synopsis, p. 17.—*Chelidonium Glaucium*, Linn.—English Botany, t. 8.—*Glaucium flavum*, Crantz.—De Cand. Prod. 1. p. 122.

Root tapering, the whole plant very glaucous. *Stem* round, smooth, from two to three feet long, much branched and spreading. *Leaves* numerous, of a leathery texture, glaucous, and more or less thickly clothed with short rough hairs, the *radical* leaves numerous, from eight to twelve inches long, stalked, pinnatifid, with dilated unequal cut lobes, much more thickly clothed with hairs than the upper ones, which

are unequally lobed or cut, rounded or heart-shaped at the base, embracing the stem, and sometimes nearly smooth on the under side. *Flowers* numerous, lateral and terminal, on shortish *pedicles*. *Calyx* of two ovate lanceolate concave lobes, scattered over with hairs, and falling off as the flower expands. *Petals* four, about an inch and half long, roundish, ovate, creased, of a fine golden yellow colour, mostly with an irregular crimson spot at the base. *Stigma* of two spreading lobes. *Pod* from eight to twelve inches long, curved, roughish, with small tubercles, two valved, filled with a spongy inter-valvular substance, in which are imbedded the smallish kidney-shaped *seeds*, of a dark shining colour, beautifully reticulated.

Habitat.—Sandy sea shores, and amongst rock; frequent.

Biennial; flowering in July to September.

It is remarkable with what rapidity the pods of this species increase after the expansion of the flower, which, indeed, is rarely for more than one day. The colour of the petals is mostly deeper by cultivation, and the dark spot at the base becomes larger. As a border flower it is not much esteemed.

2. *G. corniculatum*, Curt. (Fig. 858.) *Scarlet Horned Poppy*. "Stem hairy; stem-leaves pinnatifid, cut; pod rough, with upright bristles."—Smith.

Lindley, Synopsis, p. 18.—De Cand. Prod. 1. p. 122.—*G. phæniceum*, Gærtn.—English Botany, t. 1433.—English Flora, vol. iii. p. 7.—Hooker, British Flora, ed. 4. vol. i. p. 212.

"Root tapering. *Herb* rather less glaucous, and more upright than the preceding. *Stem* clothed with spreading hairs. *Leaves* all oblong, hairy, deeply and unequally pinnatifid and cut, the upper ones clasping the stem. *Flower-stalks* hairy, shorter than the *calyx*, which is very hairy. *Petals* smaller and narrower than in *G. luteum*, of a rich scarlet, with an oblong black spot at the base. *Pod* clothed with numerous rigid silky close pressed or upright bristles."

Habitat.—"In Portland Island.—*Lobel*. Sent from Norfolk by Mr. Stillingfleet.—*Hudson*. No person has found it since."

Annual; flowering in June and July.

This species we only know in a cultivated state, nor does it appear to have been otherwise known to both Curtis and Smith; the latter remarks, in the English Botany, "In Chelsea garden it has from time immemorial been coming up every year as a weed, and we have, as well as Mr. Curtis, (though he has not acknowledged it), drawn a garden specimen." Under these circumstances (as we are not aware of its having been since found wild) we shall be pardoned doing the same thing, and giving Smith's description of it, though perhaps it would be much better to entirely omit it in our Flora.

3. *G. violaceum*, Juss. (Fig. 859.) *Violet Horned Poppy*. Pods erect, three or four valved, with membranous dissepiments, bristly

towards the apex; leaves two or three times pinnatifid, with linear segments; stem smooth.

English Flora, vol. iii. p. 7.—Hooker, British Flora, ed. 4. vol. i. p. 213.—*Chelidonium hybridum*, Linn.—English Botany, t. 201.—*Romeria hybrida*.—De Cand. Prod. 1. p. 122.—Lindley, Synopsis, p. 18.

Root slender, tapering. *Stem* erect, from six to twelve inches high, erect, round, mostly smooth, and branched. *Leaves* mostly numerous, opposite or alternate, the lower ones stalked, the upper sessile, two or three times pinnatifid, the segments narrow, linear, dark green on the upper side, paler beneath, with a prominent mid-rib, the point obtuse, with a bristly apex. *Flowers* lateral and terminal, on simple footstalks. *Calyx* of two oblong concave pieces, somewhat rough, falling away as the flower expands. *Petals* roundish, wedge-shaped, creased, of a fine violet blue, pink at the base, lasting only a few hours. *Pod* from two to three inches long, erect, cylindrical, rough, with rigid erect bristles, especially towards the apex, opening when ripe with three or four valves, with as many membranous dissepiments, pitted for the reception of the kidney-shaped reticulated seeds.

Habitat.—Corn fields; rare in Norfolk and Cambridgeshire.

Annual; flowering in May and June.

GENUS IV. CHELIDO'NIUM.—LINN. *Celandine*.

Nat. Ord. PAPAYERACEÆ. DE CAND.

GEN. CHAR. *Calyx* of two caducous pieces. *Petals* four. *Stigma* two lobed. *Capsule* a linear one celled two valved *pod*. *Seeds* numerous, crested.—Name from *χελιδών*, a swallow; what reference the plants of this genus have to swallows we do not know: perhaps it is so named, as Hooker observes, from the plant flowering about the time of the arrival of those birds.

1. *C. majus*, Linn. (Fig. 860.) *Common Celandine*. Peduncles umbellate; leaves pinnatifid, with rounded segments and toothed lobes.

English Botany, t. 1581.—English Flora, vol. iii. p. 4.—Hooker, British Flora, ed. 4. vol. i. p. 213.—Lindley, Synopsis, p. 18.

β. laciniatum, Koch. Segments of the leaves cut into jagged acute lobes; petals often cut or crenated.

C. laciniatum, Mill.—De Cand. Prod. 1. p. 123.—Lindley, Synopsis, p. 18.—*C. majus*, var. *β.* Smith.

Root tapering. *Stem* about two feet high, round, branched, leafy, swollen at the joints, glaucous green, smooth or hairy. *Leaves* pinnatifid, with two or three pair of opposite distant lobes, and a large terminal one all more or less deeply cut, with rounded toothed segments, or as in the variety *laciniatum*, cut into narrow acute ones, the

footstalks of the segments are mostly dilated on one side at the base, sometimes into a leafy expansion, a dark shining green above, glaucous and smooth, or hairy beneath. *Flowers* a bright yellow, in small lateral simple umbels, not very numerous, and the common stalk is smooth or hairy, as are the partial ones, which are surrounded at the base, with obtuse membranous scales. *Calyx* of two oblong semi-membranous scales, concave, and falling off as the flower expands. *Petals* roundish, wedge-shaped. *Stamens* with the *filaments* dilated upwards. *Stigma* small, two lobed. *Pod* linear, cylindrical, pointed at the base and towards the apex, one celled, two valved, bursting from the bottom. *Seeds* numerous.

Habitat.—Waste places, banks, and hedges; frequent, β . Wimbleson, Surrey; *Dillenius*, Smith.

Perennial; flowering in May and June.

The whole plant abounds in an acrimonious yellow coloured juice, which has been used for the cure of various diseases of the skin in the form of infusion or decoction, and the juice is still used by country people to destroy warts, ringworms, and tetter; and diluted with milk it is said to have been used with advantage in removing specks from the eyes. When the infusion or decoction of either the herb or roots is taken it must be with caution, as its acridity is liable to cause considerable irritation of the bowels. It has been considered useful in the cure of jaundice, and perhaps the very irritation which it causes may in some cases have been useful.

GENUS V. ACTÆA.—LINN. *Bane-berry*.

Nat. Ord. RANUNCULACEÆ. JUSS.

GEN. CHAR. *Calyx* of four caducons pieces. *Petals* four. *Fruit* a one celled many seeded *berry*.—Name from $\alpha\kappa\tau\eta$, the *Elder*; which the leaves of this plant somewhat resemble.

1. *A. spicata*, Linn. (Fig. 861.) *Black Bane-berries*, or *Herb Christopher*. Berry sub-globose; petals the length of the stamens; raceme simple, elongated; leaves bi- or tri-ternate; leaflets oblong, or ovate, deeply cut and serrated.

English Botany, t. 918.—English Flora, vol. iii. p. 3.—Hooker, British Flora, ed. 4. vol. i. p. 213.—Lindley, Synopsis, p. 13.

Root with short creeping underground stems. *Stem* erect, angular, from one to two feet high, scarcely branched, smooth below, downy above, leafy. *Leaves* two or three times ternate, with long channeled footstalks, leaflets ovate, or ovate oblong, lobed, cut, and unequally serrated, a smooth shining green above, pale, glaucous, and sometimes slightly downy beneath. *Inflorescence* a terminal oblong simple raceme, of numerous flowers, each on a slender short *pedicle*, from the



862

Helianthemum canum.



863

Helianthemum guttatum.



864

Helianthemum ledifolium.



865

Helianthemum vulgare.



866

Helianthemum vulg. v. leptopetalum.



867

Helianthemum polifolium.

axis of an ovate lanceolate *bractea*. *Calyx* of four roundish concave deciduous sub-membranous pieces. *Petals* four, oblong, with short claws, soon falling away. *Stamens* numerous. *Filaments* swollen upwards. *Anthers* ovate, two celled. *Stigma* obtuse. *Fruit* a globular berry, with a lateral furrow, smooth, of one cell, purplish black, juicy. *Seeds* numerous, semi-orbicular.

Habitat.—Bushy places, especially in the limestone districts of Yorkshire, near Leeds, Huddersfield, and Halifax.

Perennial; flowering in May and June.

The berries of this plant are said to possess anti-spasmodic and expectorant properties, and to have been found useful in some cases of catarrh. They have, as well as the whole plant, a fœtid nauseous odour, and have the general reputation of being poisonous.

GENUS VI. HELIANTHEMUM.—TOURN. *Rock-rose*.

Nat. Ord. CISTIN'ÆÆ. JUSS.

GEN. CHAR. *Calyx* of five pieces, the two outer ones unequal, or wanting. *Petals* five. *Stigma* capitate. *Capsule* three valved.—Name from *ἥλιος*, the sun; and *ἄθος*, a flower; in allusion to the bright golden colour of the flowers of some of the species.

* *Leaves without stipules*.

1. *H. ca'num*, Dun. (Fig. 862.) *Hoary Dwarf Rock-rose*. Stem shrubby, spreading; leaves opposite, petiolated, ovate, or oblong, green above, hoary beneath; racemes simple, few, flowered, bracteated; calyx of five hairy pieces, the inner four ribbed; style bent in the middle.

Hooker, British Flora, ed. 4. vol. i. p. 213.—Lindley, Synopsis, p. 36.—*Cistus marifolius*.—English Botany, t. 396.—English Flora, vol. iv. p. 23.—*C. hirsutus*, Hudson.—*C. anglicus*, Linn.—*C. canus*, Jacq.—*Helianthemum oclandicum*, Wah.—*γ. tomentosa*, Koch.

Root with several wiry fibres. *Stem* woody, much branched, spreading at the base, smooth and brown below, slender and hoary above, terminating in a few flowered raceme. *Leaves* numerous, opposite, ovate, or oblong, acute, entire, on short broadish footstalks, green above, or slightly hairy, pale beneath, with soft close pressed pubescence. *Flowers* two or three, in a terminal raceme. *Bracteas* small, lanceolate. *Calyx* in five hoary pieces, the inner with four ribs. *Petals* small, obovate, entire, or waved on the margin, of a bright yellow colour. *Stamens* numerous, with emarginate anthers. *Style* bent about the middle.

Habitat.—Rare. On alpine rocks in the North of England, Lancashire, Westmoreland, Cronkey Fell, Yorkshire, and various parts of Wales.

Shrub; flowering in May and June.

This pretty little hardy shrub is more frequent in the alpine districts of the Southern parts of Europe than with us, and is found to vary considerably in the greater or less pubescence of the leaves, according to the various situations in which it has grown.

1. *H. gutta'tum*, Miller. (Fig. 863.) *Spotted Annual Rock-rose*. Stem herbaceous, erect; leaves sessile, oblong lanceolate, three nerved, the lower opposite, without stipules, the upper alternate, with stipules; racemes without bractea; calyx of five pieces, erect on the elongated spreading pedicles when in fruit; style straight, very short; stigma capitate.

Hooker, British Flora, ed. 4. vol. i. p. 213.—Lindley, Synopsis, p. 37.—*Cistus guttatus*, Linn.—English Botany, t. 544.—English Flora, vol. iii. p. 24.

Root tapering, with branched fibres. Stem erect, from six to twelve inches high, simple or branched, herbaceous, clothed like the rest of the plant with soft spreading hairs, and more or less glutinous. Leaves a dark green, oblong, lanceolate, sessile, three ribbed, the lower opposite, without stipules, the upper mostly alternate, and with linear stipules at the base. Flowers in terminal racemes, mostly numerous, each on a slender pedicle, elongated after blooming, and spreading or reflexed. Calyx hairy, of five unequal pieces. Petals a bright yellow, ovate, wedge-shaped, with or without a dark crimson spot at the base, and the margin entire, or more or less toothed, very fugacious, continuing only four or five hours. Style very short, or wanting. Capsule ovate, cone-shape, finely downy towards the apex, three valved, three celled. Seeds small, numerous, pale, most beautifully dotted with white shining elevated spots.

Habitat.—Very rare; Jersey, Holyhead mountain.

Annual; flowering in June and July.

This elegant little plant is very frequent in dry elevated and alpine districts on the Continent, and especially in the Southern parts of Europe. Varieties of it are found having the petals yellow and toothed on the margin, which is the *C. serratus*, Desf. and when the petals are spotted at the base and the margin toothed it is the *C. serratus*, Cav.

** Leaves with stipules.

3. *H. ledifo'lium*, Willd. (Fig. 864.) *Ledum-leaved Rock-rose*. Stem herbaceous, erect, slightly downy; leaves petiolated, oblong lanceolate, opposite, smooth, with stipules; flowers solitary, opposite, the upper leaves, and shorter than the calyx; style straight, very short; stigma capitate.

Hooker, British Flora, ed. 4. vol. i. p. 213.—Lindley, Synopsis, p. 37.—*Cistus ledifolius*, Linn.—English Botany, t. 2414.—English Flora, vol. iii. p. 213.

Root tapering, with branched fibres. *Stem* erect, round, simple or branched from the base, leafy and hairy, like the rest of the plant. *Leaves* opposite, oblong lanceolate, flat, on short footstalks, with a stout mid-rib and numerous lateral veins, paler beneath. *Stipules* linear lanceolate, acute, the margins revolute, not half as long as the leaves. *Flowers* not very numerous, on short pedicles, opposite the upper leaves, without bractea. *Calyx* large, of five unequal rough hairy pieces. *Petals* small, obovate, entire, yellow, very fugacious, sometimes wanting. *Style* short, straight. *Stigma* rather large, capitate. *Capsule* large, triangular, ovate, polished, mostly hairy on the angles and towards the apex. *Seeds* small, pale, roundish, numerous.

Habitat.—Very rare; on sandy ground, Brent Downs, Somersetshire.—Hudson, and Rev. Mr. Lightfoot.

Perennial; flowering in June and July.

This plant, so very rare with us, we have found not uncommon in various parts of Portugal, and it is said to be found in the South of France.

4. *H. vulgare*, Gærtner. (Fig. 865.) *Common Rock-rose*. Stem shrubby, procumbent; leaves opposite, petiolated, ovate or oblong, nearly flat, ciliated, hairy, or tomentose, with stipules; racemes terminal, bracteate; calyx with the three inner pieces ovate lanceolate, membranous, with prominent ribs; style bent at the base, swollen upwards.

Hooker, British Flora, ed. 4. vol. i. p. 214.—Lindley, Synopsis, p. 37.—*Cistus Helianthemum*, Linn.—English Botany, t. 1321.—English Flora, vol. iii. p. 26.

α. Leaves below hoary or white, with pubescence, above green, with simple or stellated close pressed hairs.

H. vulgare. De Cand. Prod. I. p. 280.

β. *tomentosum*. Leaves elliptic-oblong, very white below, with starry pubescence, above nearly smooth.

Cistus tomentosus.—English Botany, t. 2208.—English Flora, vol. iii. p. 27.—*H. tomentosum*, Dun.—De Cand. Prod. I. p. 279.

γ. *leptopetalum*, Koch. (Fig. 666.) Petals lanceolate, often cut.—*H. surrejanum*, Mill.—De Cand. Prod. I. p. 280.—Lindley, Synopsis, p. 37.—*Cistus surrejanus*, Linn. (?)—English Botany, t. 2208.—English Flora, vol. iii. p. 25.

Root woody, branched, and fibrous. *Stems* mostly numerous, procumbent, round, smooth, or hairy, much branched or simple, leafy, terminating in a raceme. *Leaves* mostly numerous, opposite, petiolated, very variable, the lower ones often roundish, and the upper linear oblong, green on the upper side, and more or less hairy, the under green and pubescent, or quite white, with close pressed starry hairs, and the margins frequently ciliated with simple ones. *Stipules* lanceolate, green, hairy. *Flowers* more or less numerous, each on a

downy erect footstalk, reflexed in fruit. *Bractea* linear, often absent on the upper flowers. *Calyx* of five pieces, the two outer ones small, lanceolate, the three inner ovate, with an acute point, thin, semi-membranous, with prominent ribs, and mostly clothed with short close fine pubescence. *Stamens* numerous, with linear *filaments* and roundish two celled *anthers*. *Style* two or three times longer than the ovary, curved at the base, swollen upwards. *Stigma* obtuse. *Capsule* roundish ovate, mostly clothed with short pubescence, three valved, imperfectly three celled. *Seeds* numerous, roundish, dark brown, almost black.

Habitat.—Frequent on dry banks and pastures. β . in mountainous pastures, &c. γ . Croydon, Surrey.

Perennial; flowering in July and August.

This is an extremely variable plant, especially in the size of the leaves, which vary also remarkably in shape, from roundish ovate to linear oblong; the upper surface is green, but smooth, or more or less hairy; the under side is green, and scattered over with star-like hairs, or it is snow white, with the margins flat, or more or less recurved. The flowers are yellow, pale straw colour, sometimes white, and by cultivation rose coloured, or pink. It is very hardy, easy of propagation, and few, if any, plants are better suited either in the continuance of their flowering, or the hardihood of their growth, or the variety and beauty of their flowers for rock work or stony banks. The star-like pubescence of the leaves is an extremely beautiful microscopic object, and there is a curious irritability in the stamens of the fresh blown flowers, which is best observed in the sunshine; if they are then disturbed with the point of a pin they shortly retire from the pistil, and lie down in a spreading form upon the petals. This, it is stated by Smith, was first pointed out to him by Dr. Hope, of Edinburgh.

5. *H. polifolium*, Hook. (Fig. 867.) *White Mountain Rock-rose*. Stem shrubby, procumbent, hoary; leaves opposite, petiolated, ovate, or oblong, the margins revolute, hoary; stipules linear; racemes terminal, bracteated; calyx with the three inner pieces ovate, obtuse, hoary, the ribs prominent, and margins membranous; style bent at the base, somewhat swollen upwards.

Hooker, British Flora, ed. 4. vol. i. p. 214.—*H. Apenninum*.—De Cand. Prod. 1. p. 282.—Lindley, Synopsis, p. 37.—*Cistus polifolius*, Linn.—English Botany, t. 1322.—English Flora, vol. iii. p. 27.

Root branched, fibrous. *Stems* several, procumbent, mostly much branched below, round, leafy, and hoary, with short close pressed down. *Leaves* opposite, petiolated, ovate oblong, or linear oblong, greenish above, with close pressed stellated down, and beneath hoary, almost white, the margins more or less reflexed. *Stipules* linear, erect, less downy than the leaves. *Flowers* in terminal racemes, mostly numerous, white, or pale yellow, each on a round hoary *pedicle*, erect in flower, reflexed in fruit. *Bractea* linear obtuse. *Calyx* in five unequal



868

Tilia europaea.



869

Tilia grandifolia.



870

Tilia parvifolia.



871

Nuphar pumila.



872

Delphinium consolida.



873

Aconitum napellus

pieces, hoary, the two outer ones small, linear, the three inner ovate, obtuse, with a membranous margin and prominent ribs. *Petals* roundish, wedge-shaped, sometimes crenated on the margin. *Stamens* numerous, with linear *filaments*, and roundish two celled *anthers*. *Style* much curved at the base, slender, somewhat swollen upwards. *Stigma* capitate. *Capsule* roundish ovate, more or less hoary, imperfectly three celled. *Seeds* numerous.

Habitat.—Rare in the South of England; Brent Downs, Somersetshire; Babbicombe and Torquay Rocks, Devonshire.

Perennial; flowering in July and August.

Excellent specimens of this extremely rare and beautiful species, as well as other rare plants of Devonshire, have been obligingly forwarded to us from the Torquay Station, by Miss Griffiths, whose mother is well known as possessing perhaps a more extensive knowledge of our marine plants than any other British Botanist, and at whose instigation and, we believe, under whose superintendence a most beautiful collection,* amounting to between two and three hundred specimens, of those plants found on the Devonshire coast, are published, and will, no doubt, contribute to a better and more extensive knowledge and study of this extremely interesting branch of Botany, than anything that has before appeared in this country.

GENUS VII. TILIA.—LINN. *Lime*.

Nat. Ord. TILIA'CEÆ: JUSS.

GEN. CHAR. *Calyx* of five deciduous pieces. *Petals* five. *Fruit* coriaceous, five celled, each cell two seeded.—Name of doubtful origin.

8. *T. Europæa*, Linn. (Fig. 868.) *Common Lime or Linden-tree*. Leaves obliquely cordate, with an acuminate point, unequally serrated, smooth, except a tuft of woolliness at the axis of the veins beneath; cymes many flowered; fruit coriaceous, downy.

English Botany, t. 610.—English Flora, vol. iii. p. 17.—Hooker, British Flora, ed. 4. vol. i. p. 214.—Lindley, Synopsis, p. 54.—*T. intermedia*, Hayn.—De Cand. Prod. 1. p. 513.

A tall handsome *tree*, with spreading branches, clothed with a smooth reddish brown bark. *Leaves* alternate, on round smooth slender footstalks, from three to four inches broad, obliquely heart-shaped at the base, with an acuminate often elongated point, the margin acutely

* *Algæ Daemonienses*, or Dried Specimens of Marine Plants, principally collected in Devonshire: carefully named, according to Sir W. J. Hooker's British Flora, by Mary Wyatt, Torquay, Devonshire.

and often unequally serrated, the upper side a bright lively green, quite smooth, the under paler, dull, with prominent mid-rib and branched lateral veins, smooth, except at the axis of the veins is a thick tuft of woolly hairs. *Stipules* ovate, smooth, soon falling off. *Inflorescence* axillary, *cymes* of numerous flowers, on a long slender smooth common stalk, furnished with a large thin pale foliaceous oblong linear *bractea*. *Flowers* pale, yellowish green, very fragrant, especially in the cool of the morning and evening. *Calyx* of five ovate pieces, downy within, soon falling away. *Petals* five, oblong ovate. *Stamens* numerous, spreading. *Style* erect, straight, simple, with an obtuse *stigma*, of five lobes. *Capsules* leathery, downy, mostly one celled, single seeded.

Habitat.—Groves, woods, and hedge rows; a doubtful native.

Tree; flowering in July.

2. *T. grandifolia*, Ehrh. (Fig. 869.) *Broad-leaved Downy Lime-tree*. Leaves obliquely sub-rotundate, cordate, with an acuminate point, unequally serrated, downy, especially beneath, and woolly at the axis of the veins; young branches downy; cymes about three flowered; fruit woody, downy, turbinate, with prominent angles.

English Botany, t. 2720.—English Flora, vol. iii. p. 18.—Hooker, British Flora, ed. 4. vol. i. p. 214.—Lindley, Synopsis, p. 54.—*T. platyphylla*, Scop. —De Cand. Prod. 1. p. 513.

A tall handsome tree, with spreading branches, clothed with reddish brown bark, downy the first year. *Leaves* alternate, large, on downy footstalks, roundish, with an acuminate often elongated point, obliquely cordate at the base, from four to five inches across, soft, with close pubescence, especially on the paler under side, and with a small tuft of woolliness at the axis of the veins, the margins somewhat unequally and acutely serrated, the serratures often with an elongated point. *Stipules* ovate, obtuse, soon falling off. *Inflorescence* axillary cymes, of about three pale yellowish green flowers, on slender nearly smooth footstalks, bearing an oblong linear pale subfoliaceous smooth *bractea*. *Flowers* very fragrant, larger than the last species. *Calyx* with ovate lanceolate pieces, downy within. *Petals* oblong. *Stamens* numerous, with slender *filaments*, longer than the petals. *Style* straight, erect, simple. *Stigma* five-cleft. *Capsule* turbinate, woolly, about five angled, five celled, but bearing usually only one dark brown seed, which destroys the dissepiments of the other cells.

Habitat.—Groves, woods, and plantations; a doubtful native.

Tree; flowering in June and July.

This species is readily distinguished by its large broad downy leaves and pubescent young branches, as well as by its three flowered cymes and angular capsules. The variety *β. corallina*, of Smith, which is distinguished by the red colour of its young shoots only, does not appear peculiar to this species. The *T. rubra*, De Cand., to which

Lindley has referred the *T. corallina*, of Smith, is a different species, having the capsules smooth, and not downy, and without ribs.

Very large trees of this species are spoken of in various countries of Europe, and rendered famous from their great size, or by some sentimental tale or fabulous story. In the Church-yard at Sedlitz, in Bohemia, are some famous old trees of this species, which are reported to have miraculously borne hooded leaves ever since the Monks of a neighbouring Convent were all hanged upon their branches!!

3. *T. parvifolia*, Ehrh. (Fig. 870.) *Small-leaved Lime Tree*. Leaves obliquely sub-rotundate, cordate, with an acuminate point, unequally serrated, smooth, glaucous beneath, with tufts of hairs scattered and at the axils of the veins; fruit sub-globose, nearly smooth, very fragile.

English Botany, t. 1705.—English Flora, vol. iii. p. 20.—Hooker, British Flora, ed. 4. vol. i. p. 214.—Lindley, Synopsis, p. 55.—*T. mycrophylla*, Vent.—De Cand. Prod. 1. p. 513.

A handsome spreading tree, with round smooth reddish brown branches. *Leaves* alternate, from two to three inches across, with rather long slender smooth footstalks, roundish, with an acuminate often elongated point, obliquely cordate at the base, smooth, the margin acutely and unequally serrated, often lobed, pale and glaucous beneath, with thick tufts of hairs scattered and at the axis of the lower veins. *Stipules* ovate, obtuse, smooth, soon falling off. *Inflorescence* axillary cymes, of numerous flowers, erect on a long slender smooth stalk, with an oblong lanceolate pale smooth foliaceous bractea. *Flowers* very fragrant. *Calyx* with ovate acute pieces, downy. *Petals* oblong, pale yellow. *Stamens* with slender filaments. *Style* straight, simple, erect. *Stigma* five cleft. *Capsule* small, sub-globose, scarcely downy, with thin fragile valves, mostly bearing only one seed.

Habitat.—Woods, plantations, and hedges, in various parts of England.

Tree; flowering in August.

Lime, or Linden trees, are much esteemed for making groves, and ornamenting the carriage roads of parks and pleasure grounds, though not perhaps so much now as formerly. *T. Europæa* is the most common in the North of Europe, and *T. grandifolia* in the Southern parts; it occasionally grows to an enormous size. Near Nenstadt, in Wirtemberg, one is stated to be at least six hundred years old, and its trunk is thirty-six feet in circumference; and one of great size, which grew where the ancestors of Linnæus had long resided, is said to have given them its Swedish name of *Linn*, and hence Linnæus. The wood of the Lime-tree is light, soft, and close grained, which qualities, together with the important one of its not being liable to the attacks of insects, renders it valuable for carving into ornaments, turning, &c. The splendid specimens of Gibbon's carvings

of dead game, flowers, &c. in Chatsworth House, and elsewhere, are carved in this wood; burnt into charcoal it is esteemed as one of the best for making gunpowder, and for painter's scribbles. The bark, steeped in water for some time, readily separates into those thin layers, which are known in this country by the name of *bass*, and are used for making mats, baskets, cordage for tying up plants, &c. by gardeners. The nuts of some of the species, when roasted, are said to have something the flavour of chocolate. The sap abounds in saccharine matter, and produces a pleasant wine by fermentation. The flowers are extremely odoriferous, and the favourite resort of bees; when distilled with water they impregnate it with the odour, but their volatile oil cannot be procured, according to Pfaff, in a separate state.

GENUS VIII. NYMPHÆA.—LINN. *White Water Lily.*

Nat. Ord. NYMPHÆACEÆ. DE CAND.

GEN. CHAR. *Calyx* of four or five pieces. *Petals* numerous, and as well as the stamens inserted upon the germen. *Berry* many celled, many seeded.—Name from *Νυμφαία*, of the Greeks, from its inhabiting the water, as the Nymphs or Naiads were wont to do.

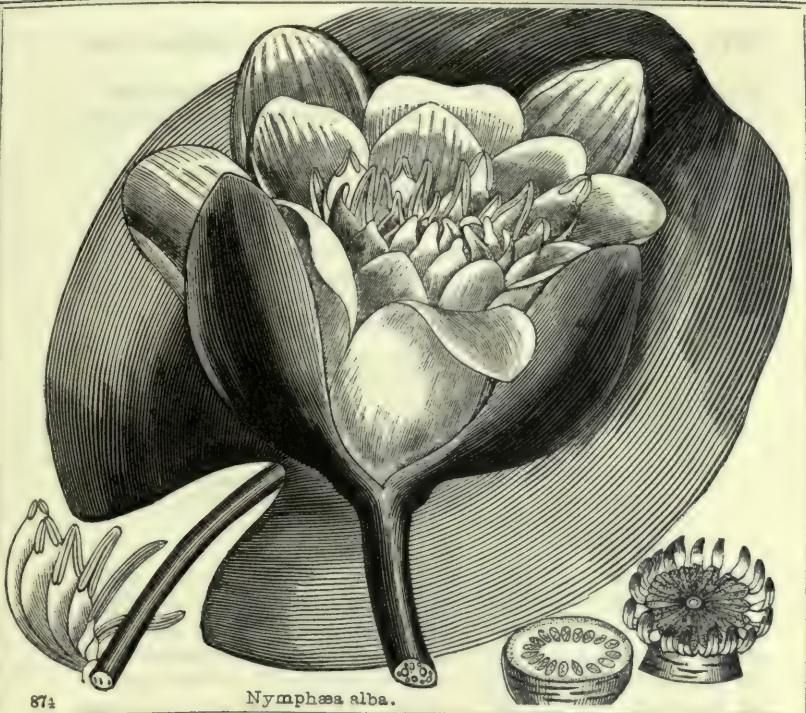
1. *N. alba*, Linn. (Fig. 874.) *White Water Lily*. Leaves subrotundate, deeply cordate, entire, the lobes obliquely ovate, nearly parallel; stigma of sixteen ascending rays.

English Botany, t. 160.—English Flora, vol. iii. p. 13.—Hooker, British Flora, ed. 4. vol. i. p. 215.—Lindley, Synopsis, p. 15.

Root tuberous, with numerous fibrous branches. *Leaves* several, on cylindrical footstalks, large, from six to twelve inches across, roundish ovate, cut, nearly parallel, about one-third the depth of the leaf into a heart-shaped form, entire, smooth, of a leathery substance, of a bright green above, paler beneath, with radiating veins and a stout mid-ribs. *Flower* solitary, on a cylindrical stalk, varying in length according to the depth of the water, quite smooth. *Calyx* oblong lanceolate, green externally, white or pinkish within, quite smooth. *Petals* numerous, pure white, oblong, inserted in several rows upon the germen. *Stamens* numerous, in several rows around the germen, with flat filaments, gradually dilated to the outer rows into petaloid ones. *Anthers* of two linear cells. *Germen* superior, sessile, globose. *Stigmas* sessile, of about sixteen rays, cleft from above the middle, the point entire, and curved inwards. *Nectary* in the centre of the stigma. *Fruit* a rather large globose berry, of as many cells as there are rays to the stigma, many seeded, coriaceous, at length becoming pulpy and gelatinous internally.

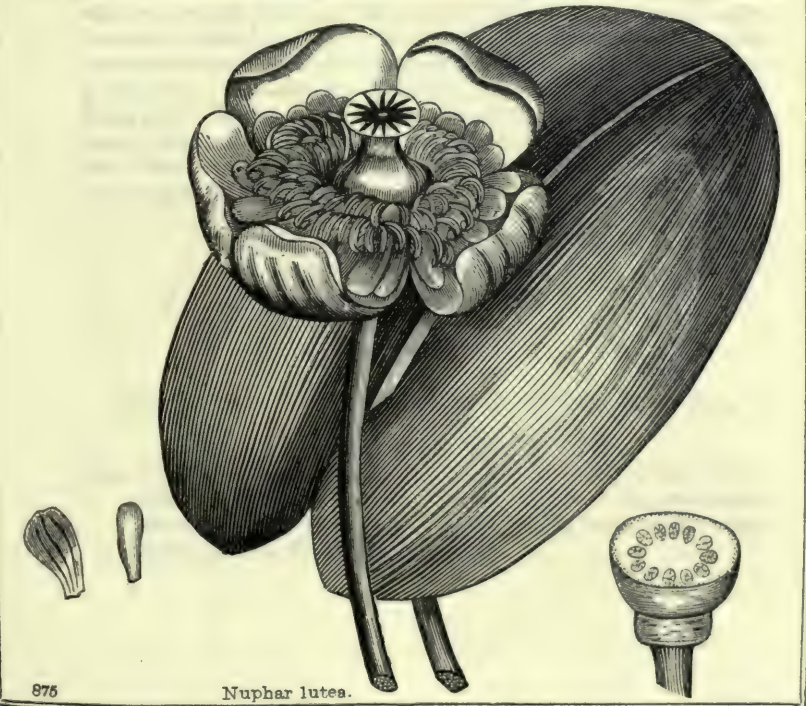
Habitat.—Lakes and still waters; frequent.

Perennial; flowering in June and July.



874

Nymphaea alba.



875

Nuphar lutea.

This is perhaps the most beautiful of all our native plants, and it is rarely surpassed by those of any other country.

Oh ! beautiful thou art,
Thou sculpture-like and stately river-queen !
Crowning the depths, as with the light serene,
Of a pure heart.

Bright lily of the wave !
Rising in fearless grace with every swell,
Thou seem'st as if a spirit meekly brave
Dwelt in thy cell :

Lifting alike thy head
Of placid beauty, feminine yet free,
Whether with foam or pictured azure spread,
The waters be.

What is like thee, fair flower,
The gentle and the firm ? thus bearing up
To the blue sky that alabaster cup,
As to the shower ?

Mrs. Hemans.

The stem and petioles of the flowers and leaves are of various lengths, according to the depth of the water in which they grow. We have taken them out of pools near Sutton-upon-Trent, Nottinghamshire, fifteen feet long, and it is not unfrequent to meet with them not as many inches. The flowers are from four to five inches across, expanding in the sunshine and middle of the day only, closing in the rain and towards evening, when they recline on or partly sink under the water ; after flowering the fruit sinks to the bottom, and deposits its numerous seeds in the mud the more securely to accomplish their germination. It is said that the stems are better than oak galls for dying grey. They have also been employed advantageously for tanning leather, and a tolerable sort of beer has been prepared from them.—*Fee.* The closing of the flowers, and their submersion in the water, is thus noticed in *Lalla Rookh*—

Those Virgin Lilies all the night
Bathing their beauties in the lake,
That they may rise more fresh and bright,
When their beloved Sun's awake.

GENUS IX. NUPHAR.—SMITH. *Yellow Water Lily.*

Nat. Ord. NYMPHÆACEÆ. DE CAND.

GEN. CHAR. *Calyx* of five or six pieces. *Petals* numerous, with a nectariferous opening at the back, and as well as the *stamens* inserted upon the receptacle. *Berry* superior, many celled, many seeded.—Name *Νουφάρ*, of Dioscorides.

1. *N. lutea*, Smith. (Fig. 875.) *Common Yellow Water Lily*. Calyx of five pieces; stigma entire, of from fourteen to twenty rays; leaves ovate, cordate, their lobes approximate.

English Flora, vol. iii. p. 15.—Hooker, British Flora, ed. 4. vol. i. p. 215.—Lindley, Synopsis, p. 15.—*Nymphaea lutea*, Linn.—English Botany, t. 159.

Root of numerous fibres, running deep in the mud, from a stout fleshy procumbent *stem*. *Leaves* large, of a leathery texture, flat, quite smooth, a bright cheerful green above, pale and dull beneath, roundish ovate, deeply heart-shaped at the base, with rounded lobes mostly overlapping each other, the margin entire, and the numerous veins radiate from the insertion of the *footstalk*, which is two edged, flat above, rounded at the back. *Flower* solitary, terminal, of a deep golden yellow, cupped, and from two to three inches across, having a peculiar smell of brandy. *Calyx* of five or six roundish wedge-shaped concave leathery pieces, bright yellow on the inside, duller and somewhat green on the out, quite smooth. *Petals* numerous, small, oblong, with a nectariferous furrow at the back, inserted into the receptacle. *Stamens* numerous, inserted with the petals into the receptacle. *Filaments* flat, recurved, with linear two celled anthers. *Style* very short. *Stigma* orbicular, deeply umbilicated in the centre, with from fourteen to twenty elevated rays, the margins entire. *Berry* large, superior, ovate oblong, smooth, of a leathery texture, with as many cells as there are rays to the stigma, many seeded, when ripe bursting irregularly.

Habitat.—Lakes, pools, canals, and ditches; frequent.

Perennial; flowering in July.

This is a much more common species than the White Water Lily, and, like it, accommodates itself in the greater or less length of its flower and leaf stalks. The leaf is of a remarkable thick leathery texture, and floats upon the surface of the water, the upper surface being quite dry; if from any cause the footstalk is prevented from growing and elevating the leaf to the surface of the water, it, instead of being thick and leathery, is extremely thin, without any intercellular substance, and of a pale green colour, and the margin folded. The peculiar alcoholic odour of the flowers, and perhaps the flaggon-shaped seed-vessel, as Hooker well observes, has led to the name of *Brandy-bottle*, by which it is known in many parts of England. The fleshy stems of this and other species are bitter and somewhat astringent, and contains a considerable quantity of sœculent matter, which, after repeated washings, is capable of being used for food. The flowers of this genus, as well as that of *Nymphaea*, are extremely interesting as showing the transformation of petals into stamens. The transition takes place so gradually, from the perfectly formed stamen, with a narrow filament to the petaloid one, and the anther at the same time so gradually diminishes in its size, that it is almost impossible to say where the stamens commence, and where the petals terminate.

2. *N. pumila*, Smith. (Fig. 871.) *Least Yellow Water Lily*. Calyx of five pieces; stigma stellated, with a toothed margin, and about ten rays; leaves ovate, cordate, their lobes approximate; fruit furrowed upwards.

English Flora, vol. iii. p. 16.—Hooker, British Flora, ed. 4. vol. i. p. 215.—Lindley, Synopsis, p. 15.—*Nuphar minima*.—English Botany, t. 2292.

Similar to the last species, but much smaller in all its parts. *Leaves* with the footstalks more angular, and concave above. *Flowers* paler, with the calyx segments greener on the outside, and it is readily and essentially distinguished by the toothed margin of the *stigma* and the furrowed fruit.

Habitat.—Several of the small Highland Lakes of Scotland; Chartners Lough, Northumberland.

Perennial; flowering in July and August.

Hooker, in his Flora Scot. v. 1, p. 169, has united this with *N. Kalmiana*, an American species, which, if not the same, is certainly most nearly allied to it; and in his British Flora he remarks, "I am even now far from certain that this ought not to be united with the American *N. Kalmiana*."

ORDER II.

PENTAGYN'IA. PISTILS VARIABLE (FROM TWO TO SIX).

GENUS X. DELPHINIUM.—LINN. *Larkspur*.

Nat. Ord. RANUNCULACEÆ. DE CAND.

GEN. CHAR. *Calyx* petaloid, of five coloured pieces, irregular, the upper piece spurred at the base. *Petals* four, the whole or mostly the two upper ones only with appendages at the base, and included within the spur of the calyx.—Name from *Delphinus*, or *δελφιν*, a *Dolphin*; from the imaginary resemblance of the shape of the flower to that fish.

1. *D. Conso'lida*, Linn. (Fig. 872.) *Field Larkspur*. Capsule solitary, smooth; corolla monopetalous; stem erect, branched, and spreading; racemes few flowered; pedicles longer than the bractea.

English Botany, t. 1839.—English Flora, vol. iii. p. 30.—Hooker, British Flora, ed. 4. vol. i. p. 216.—Lindley, Synopsis, p. 13.

β. pubescens. Capsule, stem, and leaves pubescent.

D. pubescens. De Cand. Prod. 1. p. 51.

Root tapering, with slender branched fibres. *Stem* erect, round, from one to two feet high, branched and leafy, smooth, or clothed with

soft close pubescence. *Leaves* alternate, sessile, the lower ones sometimes with a slender footstalk, three cleft, and with numerous narrow linear subdivisions, smooth, or clothed with close pubescence. *Inflorescence* terminal racemes, of a few *flowers*, on pedicles longer than the linear *bracteas*. *Calyx* of five oblong petal-like segments, mostly greenish at the back, blue or purple within the upper one, with a long straight or slightly curved spur at the base, mostly downy. *Petals* all united into an irregular cleft hood, purple or flesh colour. *Stamens* numerous, with thin dilated membranous *filaments* towards the base. *Anthers* roundish ovate, of two cells. *Style* short. *Stigma* simple. *Capsule* single, ovate oblong, pointed, single celled, bursting laterally, smooth, or clothed with pubescence. *Seeds* numerous, angular, and irregularly compressed, rough, with rows of membranous scales.

Habitat.—Sandy or chalky fields; Suffolk, Kent, Cambridgeshire; β . Thorp Arch, near Leeds, Yorkshire, in corn fields.—*Mr. Heaton*.

Annual; flowering in June and July.

The Larkspur is a favourite border flower, of great beauty, and produces flowers varying in colour from dark purple to pale blue, red, and pale pink, sometimes white, and also variegated; and by cultivation in a rich loamy soil the stamens expand into petals, and form numerous flowered close spike-like racemes, of great beauty. Besides this, many beautiful exotic species are cultivated in our gardens, and perhaps this is not a native but naturalized species.

GENUS XI. ACONITUM.—LINN. *Wolf's-bane*.

Nat. Ord. RANUNCULACEÆ. DE CAND.

GEN. CHAR. *Calyx* petaloid, of five coloured pieces, irregular, the upper segment helmet-shaped. *Petals* five, the two upper ones on long claws, nectariferous, and concealed within the calyx, the others small, linear. *Capsules* from two to six, many seeded.—Name from, it is said, *Acone*, a town in Bithynia.

1. *A. Napel'us*, Linn. (Fig. 873.) *Common Wolf's-bane*, or *Monk's-hood*. Flowers in a dense spike, or lax panicle; upper calyx piece arched at the back; the two upper petals with a conical bent nectariferous spur at the base; filaments mostly dilated; germen three to five, smooth or hairy; leaves pinnatifid, with linear wedge-shaped segments.

English Botany, Supp. t. 2730.—English Flora, vol. iii. p. 31.—Hooker, British Flora, ed. 4. vol. i. p. 216.—*A. vulgare*.—Lindley, Synopsis, p. 13.

Root tapering. *Stem* erect, simple, from three to four feet high, rounded, smooth, or scattered over with hairs, leafy, terminating in a dense spike or cluster of mostly numerous *flowers*, of a dark purplish

blue, scentless. *Leaves* numerous, alternate, with channeled footstalks, pinnatifid, with wedge-shaped lobes and linear segments, dark green above, pale beneath, scattered over with hairs, or smooth. *Bractes* small, linear. *Calyx* of five irregular unequal pieces, petaloid, the upper one large, helmet-shaped, arched at the back, the lateral ones roundish, wedge-shaped, hairy within, the two inferior, oblong. *Petals* very irregular, the two upper ones on long awl-shaped claws, enclosed in the hood of the calyx, nectariferous, oblique at the mouth, elongated into a conical recurved spur at the base. *Stamens* numerous, with incurved *filaments*, mostly dilated in membranous wings towards the base, the upper ones sometimes without anthers. *Germens* from three to five, oblong, smooth, oblique at the point, with a terminal awl-shaped *style* and simple *stigma*. *Capsules* ovate oblong, pointed with the persistent style, one celled, bursting laterally, many seeded. *Seeds* angular, rough.

Habitat.—"Side of the river Teme, Herefordshire.—*Rev. Edward Whitehead*. Very abundant on the banks of a stream at Ford, near Wiveliscombe, Somersetshire, where it continues along the stream at intervals to Milverton, a distance of three miles."—*Mr. Clark*. Below Staverton Bridge, Devon.—*Mr. Tozer*. About Mylor Bridge, Cornwall.—*Miss Warren*. Several places in Denbighshire.—*J. E. Bowman, Esq.*

Perennial ; flowering in June and July.

This is probably not a native but naturalized plant with us. It is not unfrequent on the Continent, as well as some other species. Virgil, in his Georgics, praising Italy, says, after naming other injurious productions which are not natives of Italy—

Nor pois'nous aconite is here produc'd,
Or grows unknown, or is, when known, refus'd.

It is an extremely variable plant in its characters, especially in the disposition of its flowers, the form of the calyx helmet, and the shape of its leaves. De Candolle, in his Prodrômus l. p. 62. enumerates twenty-nine varieties.

All the species of Aconitum are more or less poisonous, and rank among the most powerful vegetable poisons that are known; they were the terror of the ancients. All parts of the plant is possessed of the deliterious property. The odour of the flowers are reported to have caused swooning fits, and blindness that has lasted for several days, and various cases are recorded of persons having been killed by eating the leaves. In the roots, however, this poisonous property is much the most virulent, two drachms of which are stated by Matthioli to have caused the death of a criminal. The poisonous property of Aconitum resides in a peculiar alkali in combination with some vegetable acid, the nature of which does not seem to have been determined. "This alkali (called *Aconitina*) is in the highest degree poisonous ; the 50th

part of a grain dissolved in spirit of wine killed a sparrow in a few minutes, and the 20th instantly. Applied to the eye it occasions a temporary dilatation of the pupil." See *London Pharmacopæia*, 1836. The symptoms produced by *Aconitum* are those of the Narcotico-Acrids, when taken in small doses causing a tingling sensation in the jaws and whole body, twitching of the muscles, fixing of the eyes, locked jaw, and failure of the pulse and breathing, but without any aberration of mind. *Phil. Trans.* v. 38, p. 287. *M. Pallas* has recorded several cases of death caused by this plant, in which the symptoms were vomiting, purging, burning in the throat, colic, and swelling of the belly; and other cases are mentioned where delirium was caused in addition to the other symptoms.

Notwithstanding the violent effects of this plant, like many other deliterious and dangerous productions in the hands of the careful and judicious physician, it has been found a most valuable means of relief in nervous affections, gout, rheumatism, &c. The *Aconitina* is too powerful a medicine for internal exhibition, but in the proportion of one grain to a drachm of lard it has been found useful as an external application in neuralgic affections. The spirituous infusion of the leaves in the proportion of one part of the leaves to six of proof spirit, is recommended and given in doses of from five to ten drops, gradually increasing it according to circumstances.

GENUS XII. PÆONIA.—LINN. *Pæony*.

Nat. Ord. RANUNCULACEÆ. DE CAND.

GEN. CHAR. *Calyx* persistent, of five unequal pieces. *Petals* five, or many. *Stigmas* ligulate. *Capsules* two to five, one celled, many seeded.—Named in honour of the Physician *Pæon*, who, according to the Greek legend, is said to have cured Pluto of a wound inflicted by Hercules.

1. *P. corallina*, Retz. (Fig. 881.) *Entire-leaved Pæony*. Herbaceous, capsules tomentose, recurved; leaves twice ternate, the segments ovate, entire, smooth.

English Botany, t. 1513.—English Flora, vol. iii. p. 29.—Hooker, British Flora, ed. 4. vol. i. p. 215.—Lindley, Synopsis, p. 14.

Root of fleshy fascicles. *Stem* herbaceous, smooth, nearly erect, about two feet high, round, leafy, reddish. *Leaves* twice ternate, with ovate or oblong entire smooth leaflets, rarely pinnated. *Flower* terminal, solitary, a beautiful crimson, about four inches across. *Calyx* inferior, of five unequal concave reflexed pieces. *Petals* five, roundish oblong, concave, spreading. *Stamens* numerous, with slender linear crimson filaments, and yellow ovate oblong anthers, of two cells. *Styles* none. *Stigmas* oblong, obtuse, compressed, recurved, deep red.



Capsules ovate oblong spreading follicles, of a coriaceous texture, one celled, bursting laterally. *Seeds* numerous, oval, polished, attached to the edges of the capsules.

Habitat.—On the rocky cliffs of the Steep Holmes, in the Severn, and said to have been found on a rabbit-warren, about two miles from Gravesend.

Perennial; flowering in May and June.

The *Pæonia* was highly esteemed by the ancient Greeks, respecting which they had many superstitious notions; they thought it to be a flower of Divine origin, and to have emanated from the moon, and that it shone during the night! They believed also that it had the power of averting tempests, and protecting their harvests from injury, driving away evil spirits, &c. From which superstitions it is probable has arisen and been handed down to modern times, the belief that what are called “anodyne necklaces,” which are still sold in the shops, and turned out of the dried roots of the *Pæony*, will prevent convulsions in children, and render the cutting of their teeth easier. The roots, flowers, and seeds of *P. officinalis*, were formerly esteemed as useful in the cure of epilepsy; but are not now considered to possess any active medicinal properties. *Pæonies*, of which there are about sixteen known species, are more esteemed for their handsome flowers than for any curative virtues: some of them are very large, and extremely beautiful, and flourish well on warm borders, or under hand-glasses.

GENUS XIII. HELLEBORUS.—LINN. *Hellebore*.

Nat. Ord. *RANUNCULACEÆ*. DE CAND.

GEN. CHAR. *Calyx* persistent, of five pieces. *Petals* eight to ten, small, tubular, bilabiate, nectariferous. *Capsules* two to six, one celled, many seeded.—Name *ελλεβορος*, from its poisonous properties when eaten.

1. *H. vi'ridis*, Linn. (Fig. 879.) *Green Hellebore*. Stem few flowered, sub simple; radical leaves pedate, on channeled footstalks, the cauline ones sub-sessile, below rugose, with prominent veins; stigmas erect.

English Botany, t. 200.—English Flora, vol. iii. p. 58.—Hooker, British Flora, ed. 4. vol. i. p. 215.—Lindley, Synopsis, p. 12.

Root fleshy, with numerous long stout spreading fibres. *Stem* erect, round, smooth, simple below, and leafless, forked above, with a leaf from the base of the branches, sessile, or on a footstalk of greater or less length. *Leaves* large, seldom more than two or three from the base of the stem, on long round slightly channeled footstalks, downy towards the top, pedate, with the lateral lobes two or three cleft, with lanceolate segments, the margins sharply and unequally serrated, dark

green above, nearly smooth, paler and somewhat downy beneath, and reticulated with prominent veins, the leaves of the stem smaller, or digitate. *Flowers* two or three, terminal and axillary, on drooping somewhat angular and downy pedicles, pale green. *Calyx* of five roundish ovate pieces, quite smooth, spreading, large. *Petals* eight or ten, narrow, tubular, obtusely two lipped, nectariferous at the base. *Stamens* numerous, with awl-shaped *filaments*, and roundish two celled *anthers*. *Styles* awl-shaped, erect, with a small terminal obtuse *stigma*. *Capsules* three to five, ovate compressed coriaceous *follicles*, acutely keeled at the back, bursting on the inner edge, pointed by the erect persistent style. *Seeds* numerous, smooth, shining, black, oblong, attached by the end to the inner margins of the capsules.

Habitat.—Woods and thickets, especially in a chalky country; Oxfordshire, Cambridgeshire, Sussex, &c.; Dunglass Glen, and Laswade, Scotland.

Perennial; flowering in April and May.

This species appears to have been used by the Germans as a substitute for the Greek *ελληβορος μελας*, but it does not appear to be so powerful a plant as the following.

2. *H. fatidus*, Linn. (Fig. 876.) *Stinking Hellebore*. Stem many flowered, branched and leafy; radical leaves pedate, on channeled footstalks, the cauline with broadly dilated ones, smooth; stigmas spreading.

English Botany, t. 613.—English Flora, vol. iii. p. 58.—Hooker, British Flora, ed. 3. vol. i. p. 215.—Lindley, Synopsis, p. 12.

Root fleshy, with stout spreading fibres. *Stem* about two feet high, mostly much branched and leafy, quite smooth, a dark green. *Leaves* large, spreading, evergreen, pedate, on long angular channeled footstalks, dilated at the base, leaflets narrow, linear lanceolate, paler beneath, with a prominent mid-rib, the margins distantly serrated towards the point, the stem leaves mostly three cleft, with dilated ovate oblong footstalks, gradually becoming simple *bractees* at the base of each ramification. *Flowers* numerous, in erect spreading panicles, pale green. *Calyx* of five roundish segments, somewhat tinged with purple towards the margin. *Petals* about ten, small, tubular, somewhat dilated upwards with an oblique notched mouth. *Stamens* numerous, with awl-shaped *filaments*, and yellow *anthers*, of two cells. *Capsules* three to five, ovate compressed coriaceous *follicles*, quite smooth, with an awl-shaped spreading persistent *style*, bursting laterally, one celled, many *seeded*, attached to the inner edge of the valve.

Habitat.—Pastures, thickets, and plantations; not unfrequent in England, especially in a chalky or clay soil; less frequent in Scotland.

Perennial; flowering in March and April.

The fœtid Hellebore possesses bitter acrid properties, with a very unpleasant odour, and both in the fresh and dried state is violently cathartic and emetic, and in over doses very injurious. It has been



876

Helleborus fastidius.



877

Aquilegia vulgaris.



878

Stratiotes aloides.



879

Helleborus viridis.



880

Trollius europaeus.

used with advantage as an anthelmintic, but from its violent action it has now fallen out of use. The *H. niger* is still retained in our materia medica, and used as a drastic cathartic, and has been thought useful in cases of mania, melancholia, &c.; but from its action being so violent, other less objectionable medicines have been substituted for it. It is frequently cultivated in our gardens, and from its being in bloom about Christmas it has obtained the name of Christmas Rose.

GENUS XIV. AQUILEGIA.—LINN. *Columbine*.

Nat. Ord. *RANUNCULACEÆ*: DE CAND.

GEN. CHAR. *Calyx* deciduous, of five coloured petaloid pieces. *Petals* five, prolonged at the base into a horn-shaped spur. *Capsules* three to five.—Name from *Aquila*, an *Eagle*; from the supposed resemblance of the spurs to an Eagle's claws.

1. *A. vulgaris*, Linn. (Fig. 877.) *Common Columbine*. Spur of the petals incurved at the point; capsules hairy; stem leafy, many flowered; leaves biternate, smooth; leaflets three lobed, crenated; styles as long as the stamens.

English Botany, t. 297.—English Flora, vol. iii. p. 33.—Hooker, British Flora, ed. 3. vol. i. p. 216.—Lindley, Synopsis, p. 13.

Root tuberous. *Stem* from two to three feet high, erect, roundish, smooth, or slightly downy above, and branched, leafy, or nearly naked. *Leaves* twice ternate, smooth, or slightly downy, with three-lobed deeply and unequally crenated leaflets, a cheerful green above, glaucous beneath, the lower and radical leaves on long round footstalks, the upper with broadly dilated ones, and short. *Flowers* few, in a terminal panicle, pendulous, on downy round peduncles. *Calyx* of five deciduous ovate oblong petaloid pieces. *Petals* five, tubular, with an unequal dilated mouth, two lipped, the outer one large, flat, and spreading, the inner very small, the base prolonged into a tapering spur, hooked inwards, the apex terminated in a round gland, which secretes a fluid which is retained in the curved extremity of the tube. *Stamens* in seven circles of ten each, one opposite the other, the outer circles with slender linear *filaments*, each inner row becoming more dilated, the innermost one membranous, and mostly imperfect. *Anthers* yellow, oblong, of two longitudinal cells. *Germens* five, ovate oblong, downy, with simple awl-shaped styles, terminating in a simple obtuse *stigma*. *Capsules* ovate oblong, membranous *follicles*. *Seeds* numerous, ovate, smooth, attached to the inner edge of the valve.

Habitat.—Woods and plantations; not unfrequent.

Perennial; flowering in June.

The Columbine is a commonly cultivated border flower, which frequently becomes double, and of various colours, from its dark purple

wild state to crimson, pink, and white. The flowers are of an extremely curious structure, and the office which the nectariferous petals performs in the economy of the plant is an interesting enquiry. The stamens are remarkable not only for their position in circles, and in each stamen being placed before the other; but circles seem to be perfected one after the other, and as each inner circle perfects its anthers, and discharges its pollen, the next outer one elongates, its filaments which were recurved now become erect, and having discharged their pollen, each succeeding circle goes through the same process in its order. It is probable that the gland at the apex of the tube of the petal furnishes the stamens with a secretion conducive to their perfection.

GENUS XV. STRATIOTES.—LINN. *Water-Soldier*.

Nat. Ord. HYDROCHARID'ÆE. JUSS.

GEN. CHAR. *Spatha* of two pieces. *Calyx* three cleft. *Petals* three. *Styles* six, bifid. *Berry* hexagonal, six celled, many seeded.—
Name from *στρατος*, *army*; on account of its numerous sword-like leaves.

1. *S. aloides*, Linn. (Fig. 878.) *Water Soldier*. Leaves sword-shaped, with a prominent mid-rib, and sharp marginal serratures.

English Botany, t. 379.—English Flora, vol. iii. p. 34.—Hooker, British Flora, ed. 3. vol. i. p. 216.—Lindley, Synopsis, p. 254.

Root numerous round long simple fibres. *Stem* a round fleshy nob, from which arise the leaves, flowers, and, after it has done flowering, numerous runners, which terminate in buds, and put out roots which form the next year's plant. *Leaves* numerous, linear lanceolate, or sword-shape, from six to twelve inches long, and about three quarters of an inch wide, of a dark olive green, with a prominent mid-rib on the under side and several parallel slender veins, the margins more or less numerously furnished with sharp horny serratures. *Flowers* solitary, terminating a compressed two-edged *scape*, from four to six inches long, the margins on the upper part especially mostly furnished with prickles. *Spatha* of two unequal compressed pieces, with an acute prickly keel, single flowered. *Calyx* tubular, cleft into three obtuse lobes, pale green. *Petals* large, white, obovate, somewhat spreading. *Stamens* about twenty, inserted into the top of the tube. *Styles* six, erect, deeply cleft. *Stigmas* simple. *Fruit* a fleshy taper pointed six angled six celled *berry*. *Seeds* numerous, somewhat angular.

Habitat.—Lakes and ditches; Norfolk, Lincolnshire, Cheshire, &c.; rare in the North of England, and "planted in the Lochs of Dud-dingstone, Forfar, and Cluny."—Hooker.

Perennial; flowering in July.

The Water-Soldier, or Water-Aloe, is a remarkably curious aquatic plant. The plant, after flowering, sinks to the bottom of the water, and there deposits its seeds, and sends out round long simple runners, which terminate in buds, and expand into new plants; at the same time it puts out numerous long round simple fibrous roots, and establishes itself in the mud. As the following summer advances the roots elongate, the plant more fully develops itself, it rises to the surface of the water, puts out its flower buds, which expand, and the beautiful pure white petals are exposed in the sun, it fulfils its appointed functions, surrounded by, and protected from injury by the phalanx of its sword-like leaves; it then again sinks to the bottom of the water, charged with its numerous progeny, to perform the following year the same remarkable process of its parent.

ORDER III.

POLYGY'NIA. MANY PISTILS.

GENUS XVI. TROL'LIIUS.—LINN. *Globe-flower*.

Nat. Ord. RANUNCULA'CEÆ. DE CAND.

GEN. CHAR. *Calyx* petaloid, of from five to many deciduous pieces.

Petals five or more, small, linear, with a nectariferous depression above the claw. *Capsules* numerous, sessile, many seeded *follicles*.

—Name “said to be derived from *troll*, or *trolen*, a *ball* or *globe* in old German, and bearing the same meaning as our English word *Globe-flower*.”

1. *T. Europæus*, Linn. (Fig. 880.) *Mountain Globe-flower*. *Calyx* of about fifteen pieces, converging into a globe; petals from five to ten, about as long as the stamens; leaves palmated, with deeply cut and serrated segments.

English Botany, t. 28.—English Flora, vol. iii. p. 56.—Hooker, British Flora, ed. 4. vol. i. p. 220.—Lindley, Synopsis, p. 12.

Root of stout fleshy fibres. *Stem* from one to two feet high, round, smooth, hollow, erect, simple, or slightly branched upwards, bearing two or three sessile *leaves*, the radical ones numerous, spreading, on long slender footstalks, dilated at the base, and with the stem enveloped with the dark brown withered remains of the last year's leaves, palmated, the segments oblong, wedge-shaped, and deeply cut and serrated, a dark shining green above, pale beneath, and branched over with veins. *Flowers* terminal, solitary, large, globose, of a golden yellow colour, the *calyx* of about fifteen roundish concave converging pieces, petaloid, the outer ones rarely tinged with green. *Petals* from

five to ten, tubular, single lipped, with a nectariferous depression above the claw, about as long as the stamens, yellow. *Stamens* numerous, with slender linear *filaments*, and oblong two celled anthers. *Stigmas* numerous, sessile. *Capsules* numerous, in a round head, cylindrical, pointed, recurved, one celled, *follicles* opening on the inner side. *Seeds* numerous, attached to the margins.

Habitat.—Moist mountain pastures; not unfrequent in the North of England, Scotland, and Ireland.

Perennial; flowering in June and July.

The Globe-flower is a commonly cultivated border flower, and often becomes very double from the expansion of the stamens in petaloid segments. It is nearly allied in its structure to the Hellebores, and is possessed of similar properties, but not so violent.

GENUS XVII. CALTHA.—LINN. Marsh Marigold.

Nat. Ord. RANUNCULACEÆ. DE CAND.

GEN. CHAR. *Calyx* petaloid, of from five to many deciduous pieces.

Petals wanting. *Capsules* numerous compressed, spreading, many seeded follicles.—“Name from *χαλαρός*, a cup.”

1. *C. palustris*, Linn. (Fig. 882.) Common Marsh Marigold. Stem ascending, roundish, heart or kidney-shaped, crenated.

English Botany, t. 506.—English Flora, vol. iii. p. 59.—Hooker, British Flora, ed. 4. vol. i. p. 220.—Lindley, Synopsis, p. 12.

β. *minor*. De Cand. Stem ascending, single flowered.

English Flora, vol. iii. p. 60.—Lindley, Synopsis, p. 12.

γ. *radicans*. (Fig. 883.) Stem creeping; leaves triangular, heart-shaped, sharply crenated.

Hooker, British Flora, ed. 4. vol. i. p. 220.—*C. radicans*, Forst.—English Botany, Suppl. t. 2175.—English Flora, vol. iii. p. 60.—Lindley, Synopsis, p. 12.

Root with fleshy somewhat tuberous fibres. *Stem* ascending, thick, round, smooth, hollow, leafy, and branched, slightly furrowed. *Leaves* of a bright cheerful green, paler beneath, the radical ones on long stout round furrowed footstalks, dilated and sheathing at the base, large, roundish, heart-shaped, with large overlapping lobes, quite smooth, and more or less coarsely crenated, the upper ones smaller, sessile, or with short footstalks, mostly kidney-shaped, with spreading lobes, sometimes angular, and sharply crenated. *Stipules* thin, brown, membranous. *Flowers* from one to six each, on a round smooth furrowed *pedicle*, from two to three inches long. *Calyx* of five or more roundish ovate petaloid segments, of a bright yellow colour. *Petals* wanting. *Stamens* very numerous, with linear club-shaped *filaments*, and oblong *anthers*, of two cells. *Capsules* from five to ten, cylin-



882

Caltha palustris.



883

Caltha palustris v. radicans.



884

Thalictrum alpinum.



885

Thalictrum minus.



886

Thalictrum flavum.



887

Clematis vitalba.

drical, two-edged smooth *follicles*, pointed, with the persistent sessile *stigma*, one celled. *Seeds* numerous, attached to the margins of the valve of the capsule.

Habitat.—Marshes and wet meadows, frequent; β . less common; γ . Scotland; especially by the side of mountain lakes and rivulets.

Perennial; flowering from March to June.

The whole plant is acrid, and refused by cattle when other food can be obtained. The young flower buds, when properly pickled, are said to make a good substitute for capers, and the juice of the flowers boiled with alum forms a good yellow dye for paper, &c. By cultivation the flowers become very double, and are very showy on damp banks and borders.

GENUS XVIII. THALICTRUM.—LINN. *Meadow Rue*.

Nat. Ord. RANUNCULACEÆ. DE CAND.

GEN. CHAR. *Calyx* petaloid, of four or five pieces. *Corolla* wanting. *Capsules* single seeded, without awns.—Name from θαλλω, to flourish.

* *Stamens pendulous*.

1. *T. alpinum*, Linn. (Fig. 884.) *Alpine Meadow Rue*. Stem erect, simple, nearly leafless; raceme terminal, simple; pedicles reflexed in fruit; *stamens pendulous*.

English Botany, t. 262.—English Flora, vol. iii. p. 40.—Hooker, British Flora, ed. 4. vol. i. p. 217.—Lindley, Synopsis, p. 8.

Root fibrous. *Stem* erect, smooth, from three to six inches high, angular, and slightly furrowed, simple, naked, or with one or two leaves on short footstalks, the radical ones numerous, on long slender smooth ones, spreading, twice ternate, with roundish wedge-shaped segments, deeply crenated or lobed, dark shining green above, pale and glaucous beneath, the margins recurved, the veins branched, prominent. *Inflorescence* a simple terminal raceme. *Flowers* small, rather distant, each on a slender *pedicle*, reflexed in fruit. *Bractæas* under each pedicle, ovate lanceolate, obscurely three ribbed. *Calyx* four, ovate, acute, pale yellow. *Stamens* six to ten, with capillary *filaments*, and large linear oblong yellow *anthers*, of two cells, terminated in a short point. *Germens* two to four, ovate, compressed, with sessile spreading *stigmas*. *Capsules* each single seeded, smooth, nearly even.

Habitat.—Mountains in the North of England, Wales, and Scotland.

Perennial; flowering in July.

2. *T. minus*, Linn. (Fig. 885.) *Lesser Mountain Rue*. Stem striated, sub-pruinose; leaves ternate; leaflets roundish, or ovate, wedge-shaped, three cleft, and toothed, glaucous beneath, or glandu-

loso-pubescent, auricles of the sheaths roundish, or acute, with awl-shaped spreading teeth; panicle spreading, with alternate or whorled branches; stamens pendulous.

English Botany, t. 11.—English Flora, vol. iii. p. 41.—Hooker, British Flora, ed. 4. vol. i. p. 217.—Lindley, Synopsis, p. 9.

β. dumosum, Koch. Larger, more branched, and spreading; segments of the leaves larger, and more acuminate.

β. Hooker, British Flora, ed. 4. vol. i. p. 217.—*T. majus*.—English Botany, t. 611.—English Flora, vol. iii. p. 42.—Lindley, Synopsis, p. 9.

γ. glandulosum, Koch. Stem, petioles, leaves beneath, or on both sides with very short glandular pubescence.

T. pubescens, Schl. De Cand. Prod. 1. p. 13.

Root somewhat creeping, with branched fibres. *Stem* erect, or ascending, from four to eighteen inches high, zigzag from the joints, round, striated, smooth and shining, or glaucous, or glandulo-pubescent, green or purple, more or less branched and spreading. *Leaves* numerous, alternate, three or four pinnate, with the common stalk angular, and more or less deeply furrowed, dilated and sheathing at the base, with thin auricular expansions, roundish, acute, toothed or fringed on the margin, segments of the leaves roundish, or ovate, wedge-shaped, reticulated with veins, the margins somewhat recurved, a more or less glaucous green, paler beneath, and together with the stem sometimes scattered over more or less thickly with short glandular pubescence. *Inflorescence* a spreading panicle, with the branches alternate or whorled, with simple awl-shaped or ternate *bracteas*. *Calyx* of four ovate oblong spreading pieces, sub-membranous, ribbed. *Stamens* numerous, pendulous, with slender capillary *filaments*, and linear oblong *anthers*, of two cells, terminating in a point. *Germens* four] to eight, smooth, pointed, with a sessile, flattish, spreading *stigma*. *Capsules* spreading, smooth, deeply furrowed.

Habitat.—Hills and rocky places not unfrequent; especially in limestone or chalky countries. *β.* and *γ.* on limestone rocks, Castleton, Derbyshire.

Perennial; flowering in June and July.

This is an extremely variable plant in size, both of the stem and leaves, and is either quite smooth or more or less scattered over with very short glandular hairs. We have specimens of every grade in the form of the leaflets, from the small ovate wedge-shaped to the roundish ovate, nearly an inch across, and much acuminate at the point.

** *Stamens erect*.

3. *T. flavum*, Linn. (Fig. 886.) *Common Meadow Rue*. Stem erect, leafy, furrowed; leaves bi-pinnate; leaflets ovate, wedge-shaped, entire, or two or three-cleft, the upper ones linear; auricles of the sheath ovate, acuminate, toothed; panicle compact, sub-corymbose; flowers and stamens erect; root creeping.

English Botany, t. 367.—English Flora, vol. iii. p. 42.—Hooker, British Flora, ed. 4. vol. i. p. 217.—Lindley, Synopsis, p. 9.

β. ovatum. Leaflets broader, with a rounded or cordate base.

β. English Flora, vol. iii. p. 43.—Hooker, British Flora, ed. 4. vol. i. p. 217.

Root somewhat creeping, with branched fibres. *Stem* erect, from three to four feet high, leafy, stout, smooth, furrowed, or angular, simple, or branched upwards. *Leaves* alternate, bi-pinnate, dilated at the base into a reddish brown membranous sheath, enveloping the stem, with ovate acuminate *auricles*, toothed on the margin, the upper ones sessile, the lower on long angular furrowed footstalks, *leaflets* a deep shining green, above smooth, pale, dull, or somewhat glaucous beneath, two or three toothed, or deeply cleft, the margins more or less recurved, ovate, wedge-shaped, rounded or heart-shaped at the base, the upper leaflets almost linear, reticulated with veins. *Inflorescence* a terminal erect sub-corymbose panicle. *Flowers* numerous, densely crowded, erect, *pedicles* short, *bracteas* lanceolate, smooth. *Calyx* of four ovate lanceolate concave pieces, pale yellow. *Stamens* with a short erect *filament*, and oblong acute *anthers*, yellow, of two linear cells. *Stigmas* sessile, oblong, spreading. *Capsules* ovate, acute, smooth, deeply furrowed.

Habitat.—Damp banks and margins of rivers, not unfrequent; "less frequent in Scotland, and principally found in the vale of the Clyde."—*Hooker.* *β.* Isle of Bute, and about Lincoln.

Perennial; flowering in June and July.

This is an extremely variable plant in the shape of its leaflets, from narrow lanceolate to roundish ovate, and wedge-shaped, and either entire or one or two cleft into lanceolate or acute teeth. When the lower leaves are three cleft, wedge-shaped, and the upper linear oblong, it is the *T. nigricans*, Jacq. and *T. heterophyllum*, Lej.

The plants of this genus possess bitter somewhat cathartic properties, but are not now used in medicine. They are not relished by cattle, and are refused by them, except when mixed with other herbs. The *T. flavum* has been used as a yellow dye for woollen goods, but is not much valued.

GENUS XIX. CLEMATIS.—LINN. *Traveller's Joy.*

Nat. Ord. RANUNCULACEÆ. DE CAND.

GEN. CHAR. *Calyx* petaloid, of four or five pieces. *Corolla* wanting. *Capsules* single seeded, terminated by a long mostly feathery awn.—Name from κλημα, a shoot or tendril of vine, to which its long slender branches bear some resemblance.

1. *C. Vitalba*, Linn. (Fig. 887.) *Common Traveller's Joy.* Stem climbing; leaves pinnate; leaflets ovate, acuminate, entire, toothed,

or lobed, sub-cordate at the base; petioles twining; panicles forked, shorter than the leaves, hairy, as well as the oblong sepals.

English Botany, t. 612.—English Flora, vol. iii. p. 39.—Hooker, British Flora, ed. 4. vol. i. p. 217.—Lindley, Synopsis, p. 8.

A climbing widely spreading leafy *shrub*, with long slender deeply furrowed downy branches, much divided and entangled, supporting itself by twisting its branches and wiry petioles round other shrubs, trees, &c. *Leaves* numerous, opposite, pinnate, with two pair of leaflets and a terminal one, with long slightly furrowed downy wiry footstalks, twisting around like tendrils, and persistent *leaflets*, ovate lanceolate, or acutely pointed with a rounded or heart-shaped base, a dark green, paler beneath, with prominent mid-rib and lateral veins, downy, deciduous, with an entire margin, or coarsely toothed or lobed. *Inflorescence* axillary forked panicles, with linear *bracteas*, tomentose. *Calyx* petaloid, of four oblong white tomentose spreading pieces. *Stamens* numerous, erect, with linear club-shaped *filaments*, and yellow *anthers*, of two linear cells. *Styles* feathery, with a simple *stigma*. *Fruit* small, compressed, single seeded, capsules crowned by the elongated feathery style.

Habitat.—Hedges, not unfrequent, especially in a calcareous soil.

Shrub; flowering in July.

The Traveller's Joy, and other species of Clematis, are favourite climbing plants for harbours, trelliswork, &c., having for the most part fragrant flowers; they have acrid juices, which, applied to the skin, produce irritation, inflammation, and, if long continued, ulceration, which diletterious properties are poisonous to animals if the herbage is eaten fresh; but if the leaves are collected and dried, they then lose their active volatile principle, and form a good fodder: this at least is the case with *C. Vitalba*, and the young tender shoots of it, as well as *C. flammula*, both of which are common in Italy, are gathered by the country people in the spring, and boiled as a pot-herb. Few of our native shrubs present a more beautiful appearance, particularly in the sequestered dells of the rural districts, or add more wild solemnity to the ruined castle or mouldering abbey.

GENUS XX. ANE'MONE.—LINN. *Anemone*.

Nat. Ord. RANUNCULACEÆ. DE CAND.

GEN. CHAR. *Calyx* petaloid, of five or many pieces. *Corolla* wanting. *Capsules* single seeded, inserted into a thickened hemispherical receptacle. *Involucre* more or less remote from the flower.—Name from *ανemos*, the wind; from an old opinion that they only blossomed when the wind blew, or because they mostly grew in exposed situations.



888 *Anemone pulsatilla.*



889 *Anemone nemorosa.*



890 *Anemone Apennina.*



891 *Anemone ranunculoides.*



892 *Adonis autumnalis.*



893 *Ranunculus hederaceus.*

* *Involucre of three much divided leaves, sessile, and united at the base into a short tube. Fruit with feathery tails, (PULSATILLA).*

1. *A. Pulsatilla*, Linn. (Fig. 888.) *Pasque-flower Anemone*. Leaves as well as the involucre doubly pinnated with numerous linear segments; flower erect; sepals six, campanulate at the base, downy; carpels with long feathery tails.

English Botany, t. 51.—English Flora, vol. iii. p. 36.—Hooker, British Flora, ed. 4. vol. i. p. 217.—Lindley, Synopsis, p. 9.

Root dark brown, somewhat woody. *Leaves* all radical, doubly pinnated, with numerous narrow linear acute spreading segments, on long spreading furrowed footstalks, dilated and sheathing at the base, and enveloped in the withered remains of last year, more or less thickly clothed with long spreading hairs. *Flower* solitary, terminating in a simple stem, from three to six inches high. *Involucre* from half to an inch below the flower, of three pieces, united at the base into a short tube, and much divided into narrow linear segments, about an inch long, clothed with spreading hairs. *Sepals* of the flower six, from one to two inches long, of a dull violet blue, clothed externally with silky hairs, linear oblong, or linear ovate, united into a bell-shaped form, at the base spreading, or at length recurved towards the point. *Stamens* numerous, shorter than the perianth. *Filaments* thread-shaped. *Anthers* oblong, yellow, of two cells. *Styles* slender, tapering, downy. *Stigma* small, simple, blunt. *Fruit* numerous, crowded, carpels tapering into a long feathery awn, the elongated style.

Habitat.—Dry chalky and loamy pastures, not common, but found in various parts of England.

Perennial; flowering in April and May.

The flowers of this species are extremely beautiful, and form a pretty early border flower. It was called Pasqueflower by old Gerard, on account of its flowering about Easter. Like most other species of the genus, it is poisonous to cattle, if taken in any quantity. This poisonous quality seems to reside in a crystallizable salt, obtained by distillation from the fresh leaves, and named *anemonine*, an acrid poison, which irritates and inflames the skin.

* *Involucre of three ternate petiolated leaves. Fruit without tails. (ANEMONE.)*

2. *A. nemorosa*, Linn. (Fig. 889.) *Wood Anemone*. Involucre of three petiolated ternate leaves, the leaflets lanceolate, lobed and cut similar to the radical leaves; flower erect, solitary, of six smooth oblong sepals; carpels awnless.

English Botany, t. 355.—English Flora, vol. iii. p. 37.—Hooker, British Flora, ed. 4. vol. i. p. 37.—Lindley, Synopsis, p. 9.

Root somewhat woody, cylindrical, long, with fibrous radicals. *Leaves* radical, very few, mostly wanting, ternate, on long slender footstalks, leaflets oblong, lanceolate, two or three cleft, and crenated, a

darkish green above, paler and more hairy beneath. *Involucre* of three petiolated leaves, the petioles channeled, the central leaflet wedge-shaped at the base, three cleft and serrated, the lateral ones obliquely ovate at the base, bifid, and serrated. *Flower* solitary, on a slender round erect downy pedicle. *Sepals* about six, oblong, smooth, white or pale pink, about half an inch long, often unequal. *Stamens* numerous, with slender *filaments*, and ovate yellow two celled *anthers*. *Style* conical, with a small simple obtuse *stigma*. *Carpels* numerous, obliquely ovate, compressed, pointed with the persistent style, furrowed and downy.

Habitat.—Plantations, groves, woods, and shady banks; common. Perennial; flowering in April.

The Wood Anemone is one of the earliest flowers which decks our shady groves and rural banks with its delicate blooms. By cultivation the stamens expand into petals, and continue in bloom much longer than the single ones.

3. *A. Apenni'na*, Linn. (Fig. 890.) *Blue Mountain Anemone*. Involucre of three petiolated ternate leaves, the leaflets lanceolate, with acute lobes and teeth, similar to the radical leaves; flower erect, solitary, of twelve to eighteen linear oblong smooth sepals; carpels awnless.

English Botany, t. 1062.—English Flora, vol. iii. p. 37.—Hooker, British Flora, ed. 4. vol. i. p. 217.—Lindley, Synopsis, p. 9.

Root somewhat woody, cylindrical, with fibrous radicals. *Leaves* radical, very few, or frequently wanting, ternate, the common stalk round, slender, the partial rather long, slender, leaflets three to five, deeply cut into lobes and acute teeth, a cheerful green above, paler beneath, and smooth or somewhat hairy. *Involucre* of three petiolated leaves, lanceolate, with narrower lobes. *Flowers* solitary, on an erect downy pedicle, slender, from three to four inches long above the involucre, and mostly the stem is from four to eight inches long below it. *Sepals* of a fine blue colour, from twelve to eighteen, linear oblong, quite smooth, obtuse, sometimes notched. *Stamens* numerous, with linear awl-shaped *filaments*, and yellow oblong *anthers*, of two cells. *Styles* short. *Stigmas* simple, obtuse. *Carpels* numerous, ovate, compressed, collected into a head, awnless, pubescent.

Habitat.—Wimbleton Woods; near Harrow; near Luton Hoe, Bedfordshire; near Berkhamstead, Herts.

Perennial; flowering in April.

This rare, and with us very doubtful native species, is in many parts of Italy the most common species, and its abundant beautiful blue flowers renders it one of the most gay and conspicuous plants, especially in the hilly districts of the Appennine range.

4. *A. ranuncu'loides*, Linn. (Fig. 891.) *Yellow Wood Anemone*. Involucre of three short petiolated ternate leaves, the leaflets lanceo-

late, sub-trifid, cut and serrated similar to the radical leaves; flower erect, solitary, of five or six ovate obtuse sub-pubescent sepals; carpels awnless, pubescent.

English Botany, t. 1484.—English Flora, vol. iii. p. 38.—Hooker, British Flora, ed. 4. vol. i. p. 218.—Lindley, Synopsis, p. 10.

Root somewhat woody, cylindrical, with fibrous radicals. *Leaves* radical, very few, or frequently wanting, ternate, or frequently quinate, on long slender footstalks, leaflets oblong lanceolate, two or three cleft, cut and serrated, paler beneath, and somewhat hairy. *Involucre* of three leaves, with very short petioles, the leaflets lanceolate, the central one somewhat wedge-shaped, and three cleft and toothed, the lateral ones unequally trifid and toothed. *Flower* solitary, on an erect round slender downy pedicle, about an inch long, sometimes there are two flowers, the *sepals* five or six, of a bright yellow, somewhat pubescent externally. *Stamens* numerous, with slender *filaments*, and roundish yellow *anthers*, of two cells. *Styles* conical, short. *Stigma* small, obtuse. *Carpels* not very numerous, obliquely ovate, somewhat compressed, pointed by the persistent style, hairy.

Habitat.—Woods, rare; near King's Langley, Herts, and Wrotham, Kent.

Perennial; flowering in April.

This beautiful species, like the last, appears to be a doubtful native. It is not uncommon in the shady woods of Germany, Switzerland, and Italy. About fifty species of this genus are known, and most of them natives of Europe; many are cultivated in our gardens, but the most common, and from which so many beautiful varieties are obtained, are the *A. coronaria* and *A. hortensis*, and often they become very double. They are easy of cultivation, and are increased by the roots, and from the seedlings various coloured and often variegated flowers are obtained.

GENUS XXI. ADO'NIS.—LINN. *Pheasant's Eye*.

Nat. Ord. RANUNCULA'CEÆ. DE CAND.

GEN. CHAR. *Calyx* of five pieces. *Petals* five to ten, the claw without a nectariferous gland. *Capsules* small, single seeded.—Named from the deep colour of its flower resembling the blood of Adonis, a legendary youth, who was killed by a wild boar while hunting, and whom Venus, in grief for his death, changed into a flower.

1. *A. autumnalis*, Linn. (Fig. 892.) *Corn Adonis*, or *Pheasant's Eye*. *Calyx* smooth; petals six to eight, concave, connivant, scarcely larger than the calyx; carpels reticulated, roundish, crowned by the persistent style, numerous, in an ovate head; stem branched.

English Botany, t. 308.—English Flora, vol. iii. p. 43.—Hooker, British Flora, ed. 4. vol. i. p. 218.—Lindley, Synopsis, p. 9.

Root tapering, with branched fibres. *Stem* erect, from one to two feet high, smooth, furrowed, branched and leafy, sometimes rather downy. *Leaves* alternate, pinnatifid, very numerous divided into linear acute smooth segments, of a dark green, the lower on channeled footstalks, the upper sessile. *Flowers* solitary, terminating the branches, about half an inch across, of a fine dark shining crimson. *Calyx* of five spreading sub-membranous ovate obtuse smooth pieces. *Petals* from six to eight or ten, ovate, heart-shaped, concave, connivancing into a globe-shaped flower, claw short, and usually with a dark spot above it. *Stamens* numerous, with rather stout white filaments, curved upwards. *Anthers* ovate, dark purple, of two cells. *Styles* short, spreading, with a simple spreading stigma. *Capsules* small, numerous, roundish, smooth, reticulated, with a short beak formed by the persistent style, collected into an ovate head.

Habitat.—Corn fields in various parts of England, but not common; about Glasgow, Scotland; and Dublin, in Ireland.

Annual; flowering from May to October.

The Pheasant's Eye is very frequent in corn fields on the Continent, where also other species are found; but with us this seems rather a naturalized than an aboriginal plant. It flowers freely during the summer months, but is not a very showy plant. By cultivation the stamens are sometimes expanded into petals, but from its spreading much branched stems and many leaves it is not a very favourite border flower.

GENUS XXII. RANUNCULUS.—LINN. *Crowfoot*.

Nat. Ord. RANUNCULACEÆ. DE CAND.

GEN. CHAR. *Calyx* of three to five pieces. *Petals* five to many, the claw with a nectariferous gland, naked, or furnished with a scale. *Carpels* numerous, ovate, sub-compressed, with a mucronated apex, smooth, striated, tuberculated, or spinous, and collected into a head.—Named from *Rana*, a frog; on account of many of the species delighting to grow in wet or damp places where frogs abound.

* *Pericarps* transversely wrinkled; petals white, the claw marked with a yellow nectariferous spot.

1. *R. hederaceus*, Linn. (Fig. 893.) *Ivy-leaved Crowfoot*. Stem creeping; leaves all roundish, kidney-shaped, three to five lobed; petals small, scarcely longer than the calyx; stamens five to twelve; carpels smooth.



894 *Ranunculus aquatilis.*



895 *Ranunculus aquatilis v. contortus.*



896 *Ranunculus divaricatus.*



897 *Ranunculus fluitans.*



898 *Ranunculus lingua.*



899 *Ranunculus flammula.*

English Botany, t. 2003.—English Flora, vol. iii. p. 54.—Hooker, British Flora, ed. 4. vol. i. p. 218.—Lindley, Synopsis, p. 11.

Stem round, smooth, somewhat fleshy, branched and creeping, putting out simple fibrous *roots* from the axis of the leaves. *Leaves* opposite or alternate, roundish, kidney-shaped, of a smooth dark green, somewhat fleshy, and often marked with a dark spot in the middle, three or five lobed, entire or crenated, footstalks of variable length, with a pair of broadish ovate membranous *stipules* at the base. *Flowers* axillary, on round pedicels, small, white. *Calyx* of five ovate sub-membranous reflexed pieces. *Petals* five, roundish, scarcely longer than the calyx, the claw short, with a yellow nectariferous spot. *Stamens* with short *filaments*, and oblong *anthers*, varying in number from five to twelve. *Carpels* collected into a round head, numerous, smooth, obliquely ovate, and transversely wrinkled.

Habitat.—Wet shallows, and places occasionally inundated; not unfrequent.

Perennial; flowering during the summer months.

2. *R. aquatilis*, Linn. (Fig. 894.) *Water Crowfoot*. *Stem* floating, the submersed leaves in much divided capillary segments, floating ones three-partite, with wedge-shaped cut lobes; stem obtusely angular; petals obovate, longer than the calyx; carpels hispid; stigma sessile, obtuse.

α. peltatus, Koch. Floating leaves sub-rotunate, cordate, five lobed and crenated, the submersed leaves petiolated, with linear short straight segments.

English Botany, t. 101.—English Flora, vol. iii. p. 54.—Hooker, British Flora, ed. 4. vol. i. p. 218.—Lindley, Synopsis, p. 12.

β. contortus. (Fig. 895.) Floating leaves sub-rotunate, cordate, three to five lobed and crenated, the submersed leaves nearly sessile, with capillary much divided curled segments.

γ. pantothrix, Koch. All the leaves with capillary segments.

β. English Flora, vol. iii. p. 55.—Hooker, British Flora, ed. 4. vol. i. p. 218.

Stem long, branched, floating, obtusely angular, and striated, many leaved, and putting out long slender fibrous *roots* from the axis of the lower leaves and branches. *Leaves* alternate, the upper floating ones on rather long petioles, roundish, cordate, from three to five lobed, the lobes entire or coarsely crenated, smooth, a dark green, and somewhat fleshy, the lower submersed leaves multifid, sessile, or petiolated, and like the upper dilated at the base into thin membranous sheathing *stipules*, hairy, and mostly ciliated, the branches much divided into straight short linear acute segments, or elongated capillary curled or contorted ones. *Flowers* solitary from the axis of the leaves, on a round smooth pedicel. *Calyx* oblong, concave, obtuse, spreading, or reflexed in flower. *Petals* obovate, as long again as the calyx, white, with a short yellow claw, and small tubular nectariferous gland.

Stamens numerous, with linear *filaments*, and oblong *anthers*, longer than the ovate receptacle. *Carpels* numerous, obliquely ovate, somewhat turgid, transversely wrinkled, hairy, and with a short beak.

Habitat.—Lake pools, ditches, and running streams; frequent.

Perennial; flowering in May and June.

3. *R. divaricatus*, Schrank. (Fig. 896.) *Spreading-leaved Water Crowfoot*. Stem floating, obtusely angular; leaves all submersed, setaceo-multifid, the lacine orbicularly disposed, sessile; petals five, obovate, longer than the calyx; carpels hispid; stigma elongated, obtuse.

R. circinatus, Sibth.—*γ*. English Flora, vol. iii. p. 55.—Hooker, British Flora, ed. 4. vol. i. p. 218.

This is distinguished from the last by its apparently sessile *leaves*, the short *petiole* is dilated into a close pressed sub-membranous sheath, hairy or smooth, and scarcely auriculated, the segments are short, much divided into capillary branches, equal in length, and orbicular in their circumscription. The *flowers* are much smaller, the *style* is elongated and straight. These distinctions we have observed to be constant, but how far they might change by growing the plant in quick running streams we have not had an opportunity of ascertaining.

Habitat.—Still pools or slow running streams.

Perennial; flowering in May and June.

4. *R. fluitans*, Lam. (Fig 897.) *Floating Water Crowfoot*. Stem floating, round; leaves all submersed, setaceo-multifid, the lacine much elongated and waved; petals oblong, wedge-shaped, from five to ten, longer than the calyx; carpels smooth; stigma sessile.

R. fluviatilis, Wigg.—*R. peucedanifolius*, All.—*R. pantothrix*, De Cand.—Lindley, Synopsis, p. 12.—*R. aquatilis*.—*δ*. English Flora, vol. iii. p. 55.

This differs from all the others in having its *leaves* much elongated into capillary waved lacined segments, the *petiole* is short, dilated at the base into a narrow membranous sheath, ciliated, and often hispid; the *petals* are mostly more numerous, the *stigma* is sessile, obtuse, the *carpels* are smooth, and the stem is mostly very long and round.

Habitat.—Streams and rivers; frequent.

Perennial; flowering in May and June.

The Water Crowfoots are extremely pretty ornamental plants in the drains, pools, and rivers in most parts of this country, and are equally as common in all parts of Europe. They mostly produce a great number of flowers, which, elevated above the surface of the water, are rendered more conspicuous, from their beautiful shining white being in contrast with the dark green of the stem and leaves. It was supposed at one time that these plants were equally poisonous as some other of the genus, which does not, however, appear to be the case, as on the banks of the river Avon the cottagers are in the habit of feeding their cattle with them.



900 *Ranunculus flammula* v. *ovata*.



901 *Ranunculus gramineus*.



902 *Ranunculus ficaria*.



903 *Ranunculus alpestris*.



904 *Ranunculus auricomus*.



905 *Ranunculus acris*.

** *Pericarpis smooth; petals with the claw furnished with a small nectariferous scale. Perennial.*

1. *Leaves undivided.*

5. *R. Lin'gua*, Linn. (Fig. 898.) *Great Spear-wort.* Leaves linear lanceolate, sub-serrated, sessile, sub-amplexicaul; stem erect, simple; carpels compressed, with a thin narrow margin; beak broadly ensiform, nearly as long as the carpel.

English Botany, t. 100.—English Flora, vol. iii. p. 46.—Hooker, British Flora, ed. 4. vol. i. p. 218.—Lindley, Synopsis, p. 10.

β. *major.* Leaves broadly lanceolate.

Root numerous whorled fibres from the joints of the stolons. *Stem* erect, from two to four feet high, round, hollow, simple, leafy, smooth or hairy, stout. *Leaves* alternate, sessile, and half embracing the stem, smooth, or scattered over with a few short hairs, linear lanceolate, with an attenuated point, or as in β. broadly lanceolate, the margin entire, or unequally serrated, paler on the under side, with a stout mid-rib and obsolete lateral veins. *Flowers* not very numerous, large, handsome bright yellow, on round hairy pedicels. *Calyx* ovate, concave, with a thin membranous margin, hairy, and soon falling away after the flower is blown. *Petals* large, roundish, wedge-shaped, with a short claw, the nectariferous scale forming a short tube. *Stamens* numerous, with slender filaments and oblong anthers. *Style* flat, curved. *Carpels* numerous, in a round head, roundish, ovate, compressed, with a narrow margin, sometimes hairy, crowned by the flat sword-shaped style into a beak, about as long as the carpel.

Habitat.—Wet marshy places; not very common, most frequent in the North of England and Scotland.

Perennial; flowering in July.

6. *R. Flam'mula*, Linn. (Fig. 899.) *Lesser Spear-wort.* Leaves linear lanceolate, petiolated, the lower ones ovate lanceolate, sub-serrated; stem ascending, or prostrate and rooting; carpels obovate, smooth, with a short terminal beak.

English Botany, t. 387.—English Flora, vol. iii. p. 45.—Hooker, British Flora, ed. 4. vol. i. p. 218.—Lindley, Synopsis, p. 10.

β. *reptans.* Much smaller, with entire leaves, and creeping rooting stem.

R. reptans, Linn.—Lindley, Synopsis, Suppl. p. 219.—English Flora, vol. iii. p. 45.—β. Hooker, British Flora, ed. 4. vol. i. p. 14.

γ. *ovata*, De Cand. (Fig. 900.) Almost all the leaves ovate, petiolated.

R. ovatus, Pers. De Cand. Prod. 1. p. 32.

Root numerous long fibres. *Stem* from a few inches to two feet high, erect, ascending, or creeping, striated, simple or branched, quite smooth, or clothed with close pressed hairs. *Leaves* numerous, alternate, varying from small linear lanceolate to ovate, entire or serrated on the margin, mostly with a long channeled petiole, dilated at the base

into a pale thin membranous margin, embracing the stem, smooth, or slightly hairy. *Flowers* numerous, terminal and axillary, on round slender *pedicles*, smooth, or clothed with close pressed hairs, especially at the top. *Calyx* of five ovate concave spreading pieces, thickly clothed with close pressed hairs. *Petals* a bright yellow, roundish, wedge-shaped, spreading, the claw with a minute nectariferous scale. *Stamens* numerous, with short broadish *filaments*, and oblong yellow two celled *anthers*. *Stigma* sessile. *Carpels* obovate, compressed, smooth, with a short terminal beak, slightly marginated.

Habitat.—Marshes, watery places, banks of pools, &c.; very common. Perennial; flowering from June to September.

This is an extremely common and variable plant in its size, the shape of the leaves, and more or less hairiness of the plant, and it is erect or rooting from the creeping stem, varieties seeming, as is commonly the case, to depend upon the place of growth being more or less wet. It is very acrid, speedily producing inflammation and blisters on the skin, and its infusion is a violent emetic; but it does not appear to have been applied to any useful purpose.

7. *R. gramineus*, Linn. (Fig. 901.) *Grassy Crowfoot*. Leaves linear lanceolate, numerous striated, entire, and as well as the erect stem smooth; carpels compressed, obliquely ovate, rugose, carinated; beak short; root fascicled.

English Botany, t. 2306.—English Flora, vol. iii. p. 46.—Hooker, British Flora, ed. 4. vol. i. p. 219.—Lindley, Synopsis, p. 10.

Root with fleshy club-shaped fasciculated fibres. *Stem* erect, round, smooth, from twelve to eighteen inches high, branched upwards, and bearing two or three flowers, naked, or with one or two narrow linear leaves. *Leaves* not very numerous, radical, linear lanceolate, from four to six inches long, a yellowish glaucous green, smooth, and numerous striated with slender ribs, the petiole dilated at the base, and embracing the stem. *Calyx* of five smooth ovate acute reflexed pieces. *Petals* a bright yellow, broadly wedge-shaped, spreading, the claw with a tubular nectariferous scale. *Stamens* numerous, with linear *filaments* and linear oblong yellow *anthers*. *Carpels* numerous, crowded into a roundish head, smooth, ovate, obliquely compressed, reticulated, the keel terminating in a short beak.

Habitat.—"North Wales, Mr. Pritchard."

Perennial; flowering in May and June.

This is a very doubtful native, and does not appear to have been found except by Mr. Pritchard, in North Wales. It is not uncommon in open mountainous pastures of the Alpine districts of the Continent.

8. *R. Fica'ria*, Linn. (Fig. 902.) *Pilewort Crowfoot*, lesser *Celandine*. Leaves petiolated, cordate, angular or crenated; calyx mostly of three pieces; petals about nine.

English Botany, t. 584.—English Flora, vol. iii. p. 47.—Hooker, British Flora, ed. 4. vol. i. p. 219.—Lindley, Synopsis, p. 10.—*Ficaria ranunculoides*, Mœugh.

Root of numerous fibres, and oblong fleshy tubers. *Stems* often numerous, from one to several inches long, simple or branched, smooth, leafy, erect, or procumbent. *Leaves* numerous, roundish, heart-shaped, the lower ones waved and crenated, the upper angularly waved, a bright yellowish green, and often spotted above with black, paler and sometimes glaucous beneath, the *petioles* long, dilated at the base into a thin membranous sheath. *Flowers* terminal, solitary, on a long round smooth *pedicle*. *Calyx* of three oblong smooth ribbed spreading pieces. *Petals* from eight to ten, elliptic, oblong, acute, of a bright shining golden yellow, spreading. *Nectary* an oblong notched tubular scale. *Stamens* numerous, with linear club-shaped *filaments*, and linear oblong *anthers*, of two cells. *Carpels* not very numerous, collected into a round head, somewhat hairy, ovate, compressed, with a very short obtuse beak.

Habitat.—Woods, pastures, and shady places; common.

Perennial; flowering in April and May.

The calyx of this species is usually of three pieces, and the petals nine. It is not unfrequent, however, to find the calyx of five pieces, and the petals double that number, and sometimes the petals are only five; hence the genus *Ficaria*, which was made to receive this plant as assumed to differ in the foregoing particulars from *Ranunculus*, being founded on unstable characters, is untenable. The herbage has the reputation of being a useful antiscorbutic, and the root bruised and made into poultice is said to be a useful external application to piles; but its efficacy is probably no greater than any other emollient application would be.

2. *Leaves divided.*

9. *R. alpes'tris*, Linn. (Fig. 903.) *Alpine White Crowfoot*. Leaves smooth, the radical ones roundish heart-shaped, three or five-cleft, the segments cut or crenated, those of the stem linear, entire, or cut into linear segments; stem mostly single flowered; petals obcordate, white.

English Botany, t. 2390.—English Flora, vol. iii. p. 49.—Hooker, British Flora, ed. 4. vol. i. p. 219.—Lindley, Synopsis, p. 11.

Root of long branched fibres. *Stem* erect, simple, from four to six inches high, smooth, round, mostly sulcated above and naked, or with one or two simple linear leaves, or cleft into linear segments. *Leaves* all smooth, and radical, on short stout channeled footstalks, roundish heart-shaped, deeply three or five-cleft, into ovate segments, cut and crenated. *Flowers* mostly solitary, white. *Calyx* of five reflexed segments, oblong, smooth, with a thin pale margin. *Petals* five, obcordate, veiny. *Stamens* numerous, with short filaments, and small yellow ovate *anthers*. *Carpels* numerous, smooth, obovate, with a short erect beak.

Habitat.—Sides of rills on the Clove Mountains, Scotland.—*Mr. G. Don*.

Perennial; flowering in May.

This species is extremely rare with us, but in the Alpine districts of the Continent is not very common.

10. *R. auricomus*, Linn. (Fig. 904.) *Wood Crowfoot*. Radical leaves roundish heart-shaped, three-partite, the segments cut and crenated, those of the stem cut to the base into linear entire or toothed segments; peduncles round; calyx hairy; carpels numerous, in a round head, ovate, downy, with a hooked beak.

English Botany, t. 624.—English Flora, vol. iii. p. 48.—Hooker, British Flora, ed. 4. vol. i. p. 219.—Lindley, Synopsis, p. 10.

Root of very numerous branched fibres. *Stems* mostly two from the same root, erect, branched above, round, smooth, and leafy, many flowered. *Leaves* smooth, or slightly downy, the radical ones not very numerous, roundish heart-shaped, three-cleft, with cut and crenated or toothed segments, footstalk long, channeled, those of the stem sessile, cut to the base into linear entire or toothed spreading segments, smooth, paler beneath, and veiny. *Flowers* not very numerous, of a bright golden yellow, each on a slender round mostly hairy peduncle. *Calyx* of five ovate yellow spreading downy pieces. *Petals* five, roundish ovate, sometimes wanting. *Stamens* numerous, with linear filaments, and yellow oblong anthers. *Carpels* numerous, collected into a round head, ovate, or roundish, somewhat compressed, downy, with a narrow margin, the beak slender, hooked.

Habitat.—Woods and shady places; frequent.

Perennial; flowering in April and May.

The Wood Crowfoot, or Goldilocks, as they are sometimes called, is a far less acrid plant than many others of the genus. The flowers are sometimes found without petals, but in such plants the calyx segments are larger, and seem to supply the place of the petals.

11. *R. a'cris*, Linn. (Fig. 905.) *Upright Meadow Crowfoot*. Leaves three-partite, the radical ones lobed and cut, the petiole long and channeled, the upper with linear segments; stem erect, many flowered, with rounded peduncles; carpels numerous, in a round head, lenticular, compressed, the beak very short; calyx spreading.

English Botany, t. 652.—English Flora, vol. iii. p. 52.—Hooker, British Flora, ed. 4. vol. i. p. 219.—Lindley, Synopsis, p. 11.

Root of numerous long fibres, often from a tuberous base. *Stem* erect, from one to two feet high, branched and leafy, round, hollow, and more or less clothed with slender hairs. *Leaves* mostly hairy, the radical ones with long spreading channeled footstalks, dilated, and somewhat sheathing at the base, three-partite, the segments deeply lobed and cut, often they are palmato-partite, the upper leaves in three linear segments. *Flowers* numerous, a bright golden yellow, the



906

Ranunculus repens.



907

Ranunculus bulbosus.



908

Ranunculus sceleratus.



909

Ranunculus hirsutus.



910

Ranunculus arvensis.



911

Ranunculus parviflorus.

peduncles round, hairy. *Calyx* hairy, of five oblong spreading segments. *Petals* roundish, wedge-shaped, or cordate, with a short claw, and nectariferous scale. *Stamens* numerous, with oblong *anthers*. *Carpels* numerous, smooth, in a round head, lenticular, compressed, with a short slightly curved beak.

Habitat.—Fields, pastures, &c.; very frequent.

Perennial; flowering in June and July.

This possesses very acrid properties, producing, when bruised and applied to the skin, inflammation, blisters, and ulceration, and was formerly used for this purpose in diseases where counter irritation was indicated; but from its frequently producing sores, which are difficult to heal, it is now quite out of use.

12. *R. repens*, Linn. (Fig. 906.) *Creeping Crowfoot*. Leaves ternate or bi-ternate, the leaflets three lobed or three-partite and cut, the radical ones with long channeled petioles, the upper nearly sessile; stem erect, with creeping scions from the base, many flowered, the peduncles furrowed; calyx spreading; carpels numerous, in a round head, lenticular, compressed, smooth.

English Botany, t. 516.—English Flora, vol. iii. p. 51.—Hooker, British Flora, ed. 4. vol. i. p. 219.—Lindley, Synopsis, p. 11.

Root with numerous stout branched fibres, from a tuberous base. *Stem* erect, about a foot high, branched, and putting out long creeping scions from the base, which spread around, and put out roots from the joints. *Leaves* numerous, the lower and radical ones with long channeled petioles, dilated and sheathing at the base, and like the rest of the plant more or less thickly clothed with close pressed hairs, leaflets three, the two lateral ones shortly petiolated, the central one with a much longer one, three-partite or three-cleft, cut and toothed, paler beneath and veiny, the upper leaves nearly sessile, with the leaflets on long slender partial footstalks, the floral ones linear. *Flowers* mostly numerous, a bright golden yellow, on furrowed hairy peduncles. *Calyx* of five ovate hairy spreading segments. *Petals* roundish, heart-shaped, with a short claw, and oblong nectariferous scale. *Stamens* numerous, with yellow oblong *anthers*. *Carpels* numerous, in a round head, smooth, lenticular, compressed, with a slight punctated margin, and flattened curved beak.

Habitat.—Pastures and waste places; very frequent.

Perennial; flowering from June to August.

This is a very common and variable plant, the radical leaves are mostly marked with a black or dark brown spot in the middle. The flowers are sometimes found double, and frequently the seeds are not perfected, a circumstance of common occurrence in plants which increase by other means.

13. *R. bulbosus*, Linn. (Fig. 907.) *Bulbous Crowfoot*, or *Butter-cup*. Leaves ternate, or bi-ternate, the leaflets three-cleft, or three-partite,

and cut, the radical ones on long slender petioles, dilated at the base, the upper sessile; stem erect, bulbous at the base; peduncles furrowed; calyx reflexed; carpels numerous, in a round head, lenticular, compressed, smooth.

English Botany, t. 515.—English Flora, vol. iii. p. 50.—Hooker, British Flora, ed. 4. vol. i. p. 219.—Lindley, Synopsis, p. 11.

Root of long branched fibres, from a fleshy bulb. *Stems* mostly two or more, branched above, hairy, from one to two feet high, erect. *Leaves* numerous, hairy the radical ones, one long, slender, round, petioles dilated and sheathing at the base, of three leaflets, the lateral ones on short partial footstalks, the middle one with a long one, the leaflets three-partite, and cut into linear lobes, or three-cleft into broad toothed lobes, the floral ones sessile, and cut into linear entire or toothed lobes, obtusely pointed. *Flowers* rather large, a bright golden yellow, on slender hairy furrowed peduncles. *Calyx* reflexed, hairy, ovate lanceolate, with a membranous margin. *Stamens* numerous, with short *filaments*, and oblong yellow *anthers*. *Petals* roundish, wedge-shaped, with a short claw and broad nectariferous scale. *Carpels* numerous, in a round head, smooth, lenticular, compressed, with a slight margin and short beak.

Habitat.—Meadows and pastures; frequent.

Flowering in May and June.

This species is perhaps the most common of our Ranunculuses, and is as pungent in its taste and as stimulating in its properties as the last species, and seems to be refused as food by most cattle. It is, however, no doubt a very useful stimulating plant when mixed with others, and as it is less deleterious in its properties when dried and made into hay, it becomes a useful and valuable component amongst other plants wanting this stimulating property. It has been used for the same purposes, as *R. Acris*, but like it is now out of use medicinally. It has many common names, as butter flower and butter cups, from the belief that the yellow flowers give the colour to butter; king-cups, gold-cups, and it appears to be the cuckoo flower of Shakespear, in King Lear,

“ Nettles, cuckoo-flowers,
Darnel and all the wild weeds.”

Clare, the Northamptonshire poet, in his “Eternity of Nature,” thus alludes to its ungrateful properties—

“ I wander out and rhyme ;
What hour the dewy morning's infancy
Hangs on each blade of grass and every tree,
And sprengs the red thighs of the humble bee,
Who 'gins betimes unwearied minstrelsy;
Who breakfasts, dines, and most divinely sups
With every flower save golden butter-cups,—
On whose proud bosoms he will never go,
But passes by with scarcely ‘ How do ye do.’
Since in their showy, shining, gaudy cells,
Haply the summer's honey never dwells.”

14. *R. scelera'tus*, Linn. (Fig. 908.) *Celery-leaved Crowfoot*, or *Water Crowfoot*. Leaves smooth, ternate or bi-ternate, lobed, cut, and obtusely crenated, the upper ones nearly sessile, with linear cut segments; peduncles furrowed; calyx hairy, reflexed; carpels numerous, in an oblong head, small, smooth, roundish, compressed, with an even margin and slightly rugose disk.

English Botany, t. 681.—English Flora, vol. iii. p. 48.—Hooker, British Flora, ed. 4. vol. i. p. 219.—Lindley, Synopsis, p. 11.

Root of numerous long branched fibres. *Stem* stout, erect, hollow, leafy, much branched, from a few inches to two feet high, a pale yellowish green, smooth, and shining, except the ends of the branches and peduncles are sometimes clothed with soft spreading pubescence. *Leaves* smooth, or sometimes scattered over with soft hairs, the lower ones with channeled footstalks, dilated at the base, ternate, with ovate wedge-shaped lobes, which are sometimes again deeply divided into three lobes, cut and crenated, the upper sessile, with linear cut or toothed lobes. *Flowers* numerous, small, pale yellow opposite the leaves, and terminal, on rather short peduncles, furrowed, and mostly hairy. *Calyx* yellowish, ovate, acute, reflexed, downy, or smooth. *Petals* roundish, wedge-shaped, with a short claw, and a small nectariferous tubular scale. *Stamens* numerous, yellow, with slender filaments and oblong anthers. *Carpels* numerous, small, in an oblong cylindrical head, roundish, compressed, smooth, with an obtuse margin and slightly rugose disk, the beak very short and obtuse.

Habitat.—Sides of pools, ditches, and watery places.

Perennial; flowering in June.

This is readily distinguished from all other of our species by its hollow much branched stem, small numerous pale flowers, and oblong cylindrical head of very numerous small carpels. It is one of the most acrid of our species, producing in a short time considerable inflammation, and is said to be the plant used by indolent rogues to produce ulcers in the legs, for the purpose of exciting the charitable commiseration of the promiscuous giver of alms.

*** *Pericarps tuberculated, or muricated. Annual.*

15. *R. hirsu'tus*, Curt. (Fig. 909.) *Pale Hairy Crowfoot*. Leaves hairy, the radical ones petiolated, ternate or bi-ternate, lobed, cut, and acutely crenated, the upper ones sessile, with linear segments; peduncles furrowed; calyx hairy, reflexed; carpels numerous, in a round head, lenticular, compressed, rough, and with one or two tuberculated marginal lines.

English Botany, t. 1504.—English Flora, vol. iii. p. 50.—Hooker, British Flora, ed. 4. vol. i. p. 220.—*R. Philonotis*, Ehrhart.—Lindley, Synopsis, p. 11.

Root of numerous simple fibres. *Stem* from a few inches to two feet high, clothed with spreading pubescence, leafy, and more or less

branched. *Leaves* hairy, the radical ones with channeled footstalks, dilated and sheathing at the base, ternate, the lateral leaflets with short petioles, three lobed, cut and crenated, the middle one with a longer footstalk, and larger, upper leaves nearly sessile, with linear entire or toothed lobes. *Flowers* not very numerous, a bright golden yellow, on furrowed hairy peduncles. *Calyx* reflexed, hairy, of five ovate lanceolate segments. *Petals* roundish ovate, with a short claw and nectariferous scale. *Stamens* numerous, yellow, with short filaments and oblong anthers. *Carpels* numerous, in a round head, lenticular, compressed, with two or three tuberculated marginal lines, and a rough disk.

Habitat.—Meadows and waste ground; not unfrequent.

Annual; flowering from June to October.

This is an extremely variable plant according to the situation in which it has grown; when in a dry situation the plant is very small, and is the *R. parvulus*, Linn. It is also sometimes almost smooth, and is then the *R. intermedia*, Poir.

16. *R. arvensis*, Linn. (Fig. 910.) *Corn Crowfoot*. Leaves three-cleft, with linear entire or divided segments, those of the stem much divided; flowers numerous, small; peduncles round; calyx spreading; carpels not very numerous, in a round head, plano-compressed, spinoso-tuberculated, the margin prominent on both sides, spinous or toothed.

English Botany, t. 135.—English Flora, vol. iii. p. 53.—Hooker, British Flora, ed. 4. vol. i. p. 220.—Lindley, Synopsis, p. 11.

Root fibrous. *Stem* erect, round, smooth, or slightly hairy, simple, or mostly much branched and leafy, pale yellowish green. *Leaves* smooth, or scattered over with a few hairs, the radical and lower ones with channeled footstalks, dilated at the base, and sheathing, ternate, the leaflets deeply divided into linear entire or toothed lobes, the upper and floral leaves sessile, much divided. *Flowers* small, pale yellow, numerous, lateral and terminal, peduncles round, slender, and mostly hairy. *Calyx* ovate oblong, spreading, hairy, nearly as long as the ovate *petals*. *Stamens* not very numerous, with short *filaments* and oblong *anthers*. *Carpels* six to eight or ten, in a loose round head, obliquely ovate, the sides compressed, reticulated, and spinoso-tuberculated, the margin broad green, toothed or spinous, the beak half as long as the carpel, compressed, spinous, and mostly somewhat curved.

Habitat.—Corn fields; frequent.

Annual; flowering in June.

This species is said to be more injurious to cattle than *R. acris* and others; but as it is usually found growing among corn, and not in grass or pasture land, its deleterious effects are not, therefore, so great as they otherwise would be.

17. *R. parviflorus*, Linn. (Fig. 911.) *Small-flowered Crowfoot*. Stem spreading; leaves sub-rotundate, cordate, three lobed and



912

Mentha sylvestris.



913

Mentha rotundifolia.



914

Mentha viridis.



915

Mentha viridis v. crispa.



916

Mentha piperita.



917

Mentha citrata.

crenated, the upper five lobed; peduncles opposite the leaves; calyx reflexed, as long as the petals; carpels in a round head, beaked, plano-compressed, spinoso-tuberculated, the margin smooth.

English Botany, t. 120.—English Flora, vol. iii. p. 53.—Hooker, British Flora, ed. 4. vol. i. p. 220.—Lindley, Synopsis, p. 11.

Root of numerous branched fibres. *Stem* branched, prostrate, round, striated, smooth or hairy, leafy, from six to eighteen inches long, hollow. *Leaves* a pale green, mostly clothed with soft spreading hairs, petiolated, the lower ones roundish, heart-shaped, three or five lobed and crenated, the upper ones of three or five entire lobes. *Flowers* not very numerous, solitary, opposite to the leaves, *peduncle* short, round. *Calyx* as long as the petals, reflexed, hairy. *Petals* narrow, pale yellow, obovate, often wanting. *Carpels* in a round head, obliquely rotundate, plano-compressed, with a smooth green margin, terminating in a broad flat pointed beak, the disk tuberculated, terminating in a more or less stout spine.

Habitat.—Corn fields and sandy places, not common; about London, Norwich, Nottingham, Lincoln, and the South-West of England. Cork, Howth, and Dublin, Ireland.

Annual; flowering in May and June.

CLASS XIV.

DIDYNAMIA.

(*Four Stamens, two longer than the other two.*)

ORDER I.

GYMNOSPER'MIA. (FRUIT APPARENTLY NAKED.)

GENUS I. MEN'THA.—LINN. *Mint*.

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Calyx* equal, five toothed, its mouth naked, or rarely villous. *Corolla* funnel-shaped, the *limb* four-cleft, nearly equal, the upper segment emarginate, its tube short. *Stamens* distant. *Anthers* with parallel cells, *filaments* naked. —Name from *Minthe*, a daughter of Coeytus, who was changed by Proserpine into a herb, called by the same name, *mint*. Ovid. Met.

* *Mouth of the calyx naked.*

1. *M. sylves'tris*, Linn. (Fig. 912.) *Horse Mint*. Stem erect; leaves nearly sessile, ovate lanceolate, or oblong, acute, unequally

dentato-serrated, downy above, hoary beneath; spike linear, cylindrical, scarcely interrupted; bracteas linear, subulate; calyx shaggy, with subulate teeth.

English Botany, t. 686—English Flora, vol. iii. p. 74.—Hooker, British Flora, ed. 4. vol. i. p. 226.—Lindley, Synopsis, p. 199.

α. Longifolia, Lind. Leaves lanceolate, acute.—Smith.

M. longifolia, Huds.

β. Villosa, Lind. Leaves ovate, acute.—Smith.

M. villosa, Huds.

γ. Candicans, Lind. Spike more obtuse.—Smith.

Dooby in Raii Syn. ed. 2. p. 341.

δ. Nemorosa, Lind. Leaves elliptical, broad, and obtuse.—Smith.

M. rotundifolia, Sole.—*M. nemorosa*, Willd.—*M. alopecuroides*, Hull.

Root fibrous, with spreading suckers. Stem erect, from two to three feet high, branched, leafy, obtusely angular, hoary, with pubescence, curved downwards. Leaves opposite, spreading, sessile, or nearly so, varying in length from one to two and half inches, and in shape from roundish ovate to oblong lanceolate, with an acute point, and the margin unequally dentato-serrated, the upper surface veiny, nearly smooth, or hoary, with close pubescence, the under almost white, with soft shaggy hairs. Inflorescence slender terminal spikes, almost cylindrical from the crowded whorls, which are only interrupted towards the base. Bracteas linear, awl-shaped, spreading. Calyx small, slightly striated, the teeth awl-shaped, shaggy, with erect pubescence. Corolla about as long again as the calyx, slightly hairy, pale pink. Stamens about as long as the corolla. Seeds minute, angular, dark brown.

Habitat.—Waste watery places; not unfrequent in England, less frequent in Scotland and Ireland.

Perennial; flowering in August and September.

The varieties of this species seem to depend upon the difference of soil and situation in which they have grown. They are readily distinguished from all our other species by the slender cylindrical spikes and strongly toothed leaves. The whole plant has a strong peculiar smell.

2. *M. rotundifolia*, Linn. (Fig. 913.) Round-leaved Mint. Stem erect; leaves sessile, sub-ovate, rugose, crenato-serrated, downy above, shaggy beneath; spikes interruptedly cylindrical; bracteas lanceolate; calyx obsoletely striated, hairy, with lanceolate teeth.

English Botany, t. 446.—English Flora, vol. iii. p. 75.—Hooker, British Flora, ed. 4. vol. i. p. 226.—Lindley, Synopsis, p. 199.—*M. sylvestris*, Sole.

Root fibrous, with spreading suckers. Stem erect, from two to three feet high, simple, or branched, square, hairy and leafy. Leaves opposite, sessile, roundish or elliptical, ovate, rugose and veiny, the

margin usually unequally crenato-serrated, of a grass-green, and rough above, paler and shaggy beneath. *Inflorescence* terminal conico-cylindrical spikes, mostly with interrupted whorls, the *bracteas* lanceolate. *Calyx* small, sub-campanulate, indistinctly striated, the teeth lanceolate, hairy. *Corolla* about as long again as the calyx, pale pink. *Stamens* projecting. *Seeds* small, angular, almost black.

Habitat.—Waste moist places; not unfrequent in various parts of England; near Anichindenny, Scotland. "Carlisle Fort, near Cove, Ireland, scarcely wild."—*Mackay*.

Perennial; flowering in August and September.

The whole plant is of a pale grass-green colour, and of a viscid somewhat unctuous feel, and has a peculiar acrid odour, which it retains many years after it has been dried. The strong aromatic odour of this plant is very grateful to some people, hence it has found its way into our gardens, and by cultivation the leaves sometimes become variegated; they also retain the smell, and are prized by the curious cultivators.

3. *M. viridis*, Linn. (Fig. 914.) *Spear Mint*. Stem erect; leaves lanceolate, acute, smooth, sessile, unequally serrated; spikes interrupted; bracteas setaceous, somewhat hairy; calyx striated, with lanceolate hairy teeth; pedicles smooth.

English Botany, t. 2424.—English Flora, vol. iii. p. 76.—Hooker, British Flora, ed. 4. vol. i. p. 226.—Lindley, Synopsis, p. 199.

β. *crispa*. (Fig. 915.) Leaves nearly sessile, cordate, rugose, with a crisped margin, having long irregular sub-awl-shaped teeth, hairy.—

Mentha crispa, Linn.—English Botany, t. 2785.

Root fibrous, suckers spreading. *Stem* erect, from two to three feet high, simple, or mostly branched, square, with acute angles, smooth, mostly purple towards the base. *Leaves* opposite, sessile, or nearly so, lanceolate, acute, with a prominent mid-rib and lateral veins, smooth, or somewhat hairy, a darkish green above, paler beneath. *Inflorescence* terminal spikes, of whorled flowers, more or less distant, with smooth pedicles, and bristle-shaped bractea. *Calyx* bell-shaped, with lanceolate hairy teeth, sometimes smooth. *Corolla* about as long again as the calyx, a pale pink, smooth. *Stamens* inclosed. *Style* protruded. *Seeds* small, angular.

Habitat.—Marshy places, apparently wild in various parts of England; Cairn-hill, near Edinburgh, and Glen Farg, Perthshire, Scotland.

Perennial; flowering in August and September.

Spear Mint has a strong aromatic odour, with an agreeable somewhat bitter taste, on which account it has long been preferred for culinary purposes to any other of the genus. It is much cultivated in gardens, and in many parts of the country artificially forced in the Spring, from its being highly esteemed as an ingredient in lamb sauce; the

tender tops are also used in Spring salads, and the whole plant retains its properties when dried, and is thus kept for winter uses. For medical purposes Spear Mint is esteemed as a stomachic and carminative, and is used in the form of infusion, or the distilled water in relieving vomiting, spasms, &c. of the stomach.

4. *M. piperita*, Smith. (Fig. 916.) *Peppermint*. Stem erect; leaves petiolated, ovate lanceolate or oblong, serrated; spikes oblong, cylindrical, obtuse, interrupted; bracteas lanceolate; calyx furrowed, smooth at the base, the teeth lanceolate.

English Flora, vol. iii. p. 77.—Hooker, British Flora, ed. 4. vol. i. p. 227.—Lindley, Synopsis, p. 199.

α. Officinalis, Lind. "Leaves ovate lanceolate; spikes elongated."—English Botany, t. 687.—English Flora, vol. iii. p. 77.

β. Ovata, Lind. "Spikes shorter and blunter, almost capitate."—English Flora, vol. iii. p. 78.

γ. hircina, Lind. "Leaves ovate, slightly heart-shaped; spikes more acute."—English Flora, vol. iii. p. 78.

Root fibrous, with long creeping suckers. *Stem* erect, from two to three feet high, simple or branched, square, roughish, with short recurved hairs. *Leaves* opposite, all on footstalks, lanceolate, ovate, or oblong, with a more or less acute point, the margin strongly serrated, a dark green, and nearly smooth above, paler and rougher beneath. *Inflorescence* terminal spikes, the whorls more or less distant, and leafy below, *bracteas* lanceolate, fringed. *Calyx* on nearly smooth stalks, slender, furrowed, dotted with glands, the teeth lanceolate, awl-shaped, fringed with hairs, and mostly a purplish colour. *Corolla* about as long again as the calyx, a darkish purple colour. *Stamens* shorter than the corolla. *Style* slender, protruding.

Habitat.—Watery places in various parts of England; Alford, Aberdeenshire, North Queensferry, Scotland; banks of the Lake Farnham, near Newtownlimavady, and Banks of the Lee, near Carrigrshan Castle, Ireland.

Perennial; flowering in August and September.

Peppermint has long been cultivated for the warm aromatic properties which it possesses; and is esteemed more as a medicinal plant than for culinary purposes. It has a strong penetrating odour, somewhat resembling camphor, and has a very warm pungent slightly bitter taste, which is succeeded by a cold sensation in the mouth. These qualities are imparted to water, and by distillation a volatile oil is procured of a yellow colour, and holds camphor in solution; but according to Thompson's Organic Chemistry, p. 473, no European oil yields camphor, while that from America yields crystals when cooled down, which Dumas has shown to differ from camphor, merely by containing two additional atoms of hydrogen. Medicinally, Peppermint is used as an antispasmodic and carminative, and is beneficially given in nausea and griping, hysterical affections, flatulency, &c., and it is also used as a vehicle to disguise the taste of other medicines. The



918 *Mentha sativa*



919 *Mentha sativa* v. *hirsuta*.



920 *Mentha pulegiensis*.



921 *Mentha arvensis*.



922 *Mentha arvensis* v. *glabriuscula*.



923 *Mentha arvensis* v. *rubra*.

oil is variously used in confectionery, and is an ingredient in some aromatic cordials.

5. *M. citrata*, Ehrh. (Fig. 917.) *Bergamot Mint*. Stem erect, much branched; leaves petiolated, broadly ovate, or heart-shaped, serrated, smooth; flowers in whorled heads; calyx, pedicles, and the awl-shaped bractes quite smooth.

English Flora, vol. iii. p. 79.—Hooker, British Flora, ed. 4. vol. i. p. 227.—Lindley, Synopsis, p. 200.—*M. odorata*, Sole.—English Botany, t. 1025.—*M. aquatica*, var. *glabrata*, Koch.—Flr. Germ. et Helv. p. 551.

Root fibrous, with creeping suckers. Stem from one to two feet high, much branched, and spreading like the rest of the plant, quite smooth, and mostly of a pink or purple colour. Leaves numerous, opposite on footstalks, broadly ovate, or heart-shaped, paler beneath than above, with numerous veins, the margins serrated, and often tinged with pink. Inflorescence of numerous flowers, in a crowded terminal head, and with one or more axillary whorls at some distance beneath. Bractes awl or bristle-shaped, quite smooth, as are the rounded flower stalks. Calyx quite smooth, with a cylindrical ribbed tube, scattered over with small globose glands, the teeth lanceolate, awl-shaped, purplish. Corolla about as long again as the calyx, of a reddish purple colour. Stamens inclosed. Style prolonged.

Habitat.—Watery places, rare; Cheshire, near Bedford, and near Capel-Carey, between Llanrost and Llanberris, North Wales.

Perennial; flowering in August and September.

This is a doubtful native plant, frequently cultivated in gardens, on account of its extremely fragrant scent, which resembles "Bergamot Orange, or the herbage of *Monarda didyma*."—Smith. It is nearly allied to the following species, but its entire want of hairiness is thought a sufficient distinction. We only know it as a cultivated plant, and it is probable in the stations above quoted it has escaped from gardens.

6. *M. sativa*, Linn. (Fig. 918.) *Water Mint*. Flowers in heads of distant whorls; calyx tubular, or funnel-shaped, clothed with erect hairs, the pedicles with recurved ones; leaves petiolated, elliptic, ovate, serrated, hairy, the stem with recurved hairs.

α. Flowers in dense compound terminal and lateral heads.

M. hirsuta, Linn.—English Botany, t. 447.—English Flora, vol. iii. p. 80, var. α. β. γ.—"*M. palustris* and *paludosa*, of Sole."—Hooker, British Flora, ed. 4. vol. i. p. 227.

β. *hirsuta*. (Fig. 919.) Flowers in axillary whorls.

M. sativa, Linn.—English Botany, t. 448.—*M. verticillata*, Linn.—*M. rivalis*, β. γ. δ. Sole.—*M. hirsuta*, var. ζ. η. θ.—English Flora, vol. iii. p. 80.—*M. acutifolia*, Sm.—English Botany, t. 2415.—English Flora, vol. iii. p. 82.—Hooker, British Flora, ed. 4. vol. i. p. 227.—*M. arvensis*, β.—Lindley, Synopsis, p. 200.

Root fibrous, with long creeping suckers. *Stem* erect, simple, or branched, leafy, square, mostly rough, with short recurved hairs. *Leaves* ovate, or elliptic ovate, rounded or tapering at the base, serrated, and more or less rough, with short hairs, paler, and with prominent ribs on the under side. *Inflorescence* dense, many flowered, terminal and lateral heads, or in distant whorls, sometimes the whorls are so close together as to form an oblong spike. *Flowers* on short pedicles, more or less rough, with reflexed hairs. *Bracteas* lanceolate, hairy. *Calyx* tubular, or funnel-shaped, furrowed, rough, with hairs of various lengths, all pointed upwards, and scattered over with glandular dots. *Corolla* purplish, about half as long again as the calyx, hairy on the outside. *Stamens* variable in length, but mostly longer than the corolla.

Habitat.—Banks of rivers, drains, marshes, and watery places; frequent.

Perennial; flowering in August and September.

This variable species is distinguished from the others, by the tubular calyx having its hairs erect, while those of its pedicle are recurved. All varieties, from a capitate to a close whorled spike and remote whorled inflorescence, are found; but as this is a character by no means constant it cannot be relied upon. The odour of the whole plant is strong, pungent, and to most people disagreeable; some of its varieties are much less so than others, and this seems to depend upon the kind of soil, and its being more or less moist, and also upon its being a shady or open situation in which it has grown.

7. *M. pratensis*, Sole. (Fig. 920.) *Meadow Mint*. Stem erect, much branched; leaves lanceolate, serrated, nearly sessile; flowers in globose distant whorls, shorter than the leaves; calyx campanulate, quite smooth at the base, as well as the pedicles.

Lindley, Synopsis, p. 199.—*M. gentilis*, Linn.—English Botany, t. 449.—*M. gracilis*, Sm.—English Flora, vol. iii. p. 85.—Hooker, British Flora, ed. 4. vol. i. p. 228.

Root fibrous, with widely spreading suckers. *Stem* erect, much branched, of a red colour, obtusely angular, rough, with reflexed hairs, very leafy, especially above. *Leaves* lanceolate, spreading, on short footstalks, acutely and unequally serrated, somewhat paler beneath than above, more or less clothed with short pubescence, and scattered over with small pellucid glandular dots. *Inflorescence* crowded axillary whorls, sessile, or stalked, much shorter than the floral leaves. *Pedicles* red, smooth. *Calyx* short, tubular, smooth at the base, hairy above, and the teeth ciliated. *Corolla* small, pink, somewhat hairy externally. *Stamens* shorter than the corolla.

Habitat.—Waste watery places, about towns and villages.

Perennial; flowering in August and September.

This appears to be an intermediate state between the former and following species; but how far it will be found permanently distinct

from either we have our doubts, for we find so many intermediate links between these species, as to render it difficult to know what are the limits of one, and where the other commences.

8. *M. arven'sis*, Linn. (Fig. 921.) *Corn or Field Mint*. Leaves petiolated, ovate, ovate lanceolate, or elliptic lanceolate, serrated; flowers in distant whorls, shorter than the leaves; calyx campanulate, elongated in fruit, and as well as the pedicles smooth or slightly hairy.

English Botany, t. 2119.—English Flora, vol. iii. p. 86.—Hooker, British Flora, ed. 4. vol. i. p. 228.—*M. agrestis*, Sole.—English Botany, t. 2120.

β. glabriuscula, Koch. (Fig. 922.) Leaves ovate, acute; pedicles and lower part of the calyx smooth.

M. gentilis, Linn.—English Botany, t. 2118.—English Flora, vol. iii. p. 84.—Hooker, British Flora, ed. 4. vol. i. p. 227.—*M. arvensis*, *δ*. Lindley, Synopsis, p. 201.

γ. rubra. (Fig. 923.) Leaves ovate lanceolate; pedicles and lower part of the calyx smooth.

M. rubra, Sm.—English Botany, t. 1413.—English Flora, vol. iii. p. 83.—Hooker, British Flora, ed. 4. vol. i. p. 227.—*M. arvensis*, *γ*.—Lindley, Synopsis, p. 200.

Root fibrous, with spreading suckers. *Stem* erect, or spreading, from one to three feet high, simple, or branched, square, smooth, or more or less clothed with reflexed hairs. *Leaves* ovate, ovate acute, or ovate lanceolate, spreading, on short footstalks, sharply and somewhat unequally serrated, paler beneath, nearly smooth, or clothed with soft pubescence. *Inflorescence* of numerous flowered whorls, sessile in the axis of the upper leaves, or on short stalks, the *pedicles* round, smooth, or with unequal spreading hairs. *Calyx* campanulate, or somewhat tubular, with broadish teeth, mostly smooth in the lower half, and hairy above, the teeth always ciliated. *Bracteas* small, lanceolate, hairy. *Corolla* pale, purplish blue, mostly hairy externally. *Stamens* inclosed, or protruding. *Style* prominent.

Habitat.—Corn fields, especially in a sandy soil; banks of ditches and wet places, frequent; *γ*. less common.

Perennial; flowering from June to September.

This is an extremely variable species, both as to size and hairiness, owing to the more or less luxuriant soil and situation in which it has grown. In some of the almost innumerable shades of variety which are found, and especially the more hairy ones, which have the pedicles and calyx hairy, it is almost impossible to distinguish them from varieties of *M. sativa*; and we are by no means certain of our correctness in referring *M. rubra*, Sm. to this, rather than to *M. sativa*.

The odour of this species is much less agreeable than most of the others. The variety *β*. is occasionally found with the leaves variegated

with white stripes, and from its curious appearance it is sometimes cultivated in flower gardens.

**** Mouth of the calyx closed with hairs.**

9. *M. Pulegium*, Linn. (Fig. 924.) *Penny-royal*. Stem prostrate; leaves petiolated, ovate, obsoletely toothed, downy; flowers in distant globose whorls; calyx tubular, downy, as well as the pedicles, the mouth closed by a ring of hairs.

English Botany, t. 1026.—English Flora, vol. iii. p. 88.—Hooker, British Flora, ed. 4. vol. i. p. 228.—Lindley, Synopsis, p. 201.

Root fibrous, with spreading suckers. *Stems* slender, obtusely angular, pink and downy, prostrate at the base, and putting out roots from the lower joints. *Leaves* numerous, mostly recurved, small, ovate, frequently recurved, on short slender footstalks, downy, paler on the under side, and with prominent mid-rib and lateral veins. *Inflorescence* of numerous crowded flowers, in distant globose whorls, the *pedicles* slender, clothed with close soft pubescence. *Calyx* tubular, ten ribbed, downy, the teeth lanceolate, ciliated, the mouth closed with a ring of short hairs. *Corolla* about as long again as the calyx, downy externally, a purplish pink, sometimes white. *Stamens* longer than the corolla.

Habitat.—Margins of streams, wet commons; not unfrequent in England and the South of Ireland.

Perennial; flowering in August and September.

The leaves and calyx are profusely scattered over with small round glandular dots, which secrete an abundance of highly fragrant oil, upon which the property of the plant depends. This plant was formerly held in high esteem as an emmenagogue expectorant, diuretic, and antispasmodic, but it has not now the high reputation which it had, and is seldom used in medicine for these purposes, but only as a carminative.

GENUS II. THYMUS.—LINN. *Thyme*.

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Flowers* in whorled capitate racemes. *Calyx* tubular, ten ribbed, two lipped, the upper lip three toothed, the lower one bifid, throat hairy. *Corolla* with the upper lip straight, notched, the lower trifid, tube naked.—Name from *θυμος*, *strength*; on account of its strong balsamic odour strengthening and reviving the spirits of animals.

1. *T. Serpyllum*, Linn. (Fig. 925.) *Wild Thyme*. Stem recumbent, whorls in racemose heads; leaves flat, elliptic, ovate, obtuse; petiole short, the margin ciliated, entire.

English Botany, t. 1514.—English Flora, vol. iii. p. 108.—Hooker, British Flora, ed. 4. vol. i. p. 228.—Lindley, Synopsis, p. 201.



924

Mentha pulegium.



925

Thymus serpyllum.



926

Origanum vulgare.



927

Calamintha officinalis.



928

Calamintha nepeta.



929

Calamintha acinos.

Root fibrous, with creeping suckers. *Stem* somewhat woody at the base, slender, wiry, much branched and entangled, procumbent and rooting, branches numerous, ascending, obtusely angular, downy, and mostly of a pink colour. *Leaves* numerous, small, flat, elliptic ovate, or linear ovate, obtuse, on a short slender footstalk, entire, the margin ciliated, sometimes the whole leaf is downy, paler on the under side than the upper. *Inflorescence* whorled flowers, mostly in a terminal racemose head, with one or two distant whorls. *Flowers* on short hairy stalks. *Calyx* tubular, ten ribbed, hairy, the lower lip of two awl-shaped teeth, the upper of three short broad acute ones, the mouth fringed with a ring of white hairs. *Corolla* about as long again as the calyx, varying in colour from deep rose to white, the lower lip three-cleft, and variegated with darker spots, the upper notched, ovate-subangular. *Stamens* spreading, as long as the corolla.

Habitat.—Heaths and dry places; very common.

Perennial; flowering from July to August.

Wild Thyme possesses the sensible qualities of the Garden Thyme, *T. vulgaris*, though in a less degree. It is extremely common, and very variable in its appearance, and the odour which it exhales. On dry exposed downs and heaths it seldom exceeds two inches in height, but if it has grown in a moist and shady situation it sometimes becomes twelve or eighteen inches long, and depending upon the same causes it is more or less covered with pubescence. It is commonly believed that sheep fed upon downs, &c., where this plant is common, gives the mutton a superior flavour. It is probable, however, that the fact of the mutton being superior does not depend upon the sheep feeding upon the Thyme; the superiority of the natural grass and unforced herbage, which grow where the Thyme is wild, being rather the real cause. Bees are extremely fond of the fragrant flowers of this plant, and the honey produced where it abounds is of a fine quality and flavour.

GENUS III. ORIGANUM.—LINN. *Marjoram*.

Nat. Ord. LABIATÆ: JUSS.

GEN. CHAR. *Flowers* in angular spiked whorls, imbricated with bracteas. *Calyx* five toothed, or obliquely cut, entire. *Corolla* with the upper lip straight, notched, the lower trifid, tube naked.—Name from *ορος*, a hill, or mountain; and *γαιος*, joy; so called from the pretty spiked flowers and the agreeable perfume of these plants being the joy or ornament of the hill on which they flourish.

1. *O. vulgare*, Linn. (Fig. 926.) *Common Marjoram*. Stem erect, panicled above; flowers in roundish crowded heads; bracteas purple, longer than the calyx, without glandular dots; calyx with five acute teeth, the throat hairy; leaves ovate, acute.

English Botany, t. 1143.—English Flora, vol. iii. p. 106.—Hooker, British Flora, ed. 4. vol. i. p. 228.—Lindley, Synopsis, p. 201.

Root with creeping suckers. *Stem* erect, from one to two feet high, paniculated above, obtusely angular, mostly of a purplish hue, hairy, especially on the opposite and alternate sides between the leaves, the hairs soft and jointed. *Leaves* opposite, ovate acute, or oblong acute, on short slender footstalks, entire, or toothed, nearly smooth above, beneath hairy, pale, and scattered over with glandular dots. *Inflorescence* a terminal panicle. *Flowers* in globose heads, surrounded with ovate acute nearly smooth purple *bracteas*, without glandular dots. *Calyx* tubular, with five acute often unequal teeth, hairy, the throat surrounded with white hairs, the *pedicle* short, hairy. *Corolla* tube dilated, the upper lip straight, notched, the lower three-cleft, the middle lobe broad, somewhat heart-shaped. *Stamens* distant, protruding.

Habitat.—Hilly and bushy places, especially in a dry soil; frequent. Perennial; flowering in July and August.

The leaves of this species abound in volatile oil, of an agreeable aromatic odour and warm pungent taste, which is obtained by distillation with water; it is acrid and irritating, and is considered as a useful external irritating application. The infusion was esteemed as a warm tonic, useful in debility of the stomach, but its use is now very limited. The *O. majorana* is cultivated as a pot herb, and has a pleasanter less acrid flavour than the *O. vulgare*; but it is not now much used for culinary purposes. The hairs of the stem and leaves are extremely curious; when examined with a magnifying glass, they are seen to be composed of a number of elongated cells, and each cell alternately compressed.

GENUS IV. CALAMINTHA.—MÆNCH. *Calamint*.

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Flowers* solitary, or numerous, in corymbose axillary whorls. *Calyx* tubular, thirteen ribbed, cylindrical, or swollen at the base, two lipped, the upper three toothed, the lower bifid, the throat mostly hairy. *Corolla* with the upper lip nearly plane, the lower one trifid, the middle lobe notched.—Name from καλος, *good*; and μινθα, *mint*; an ancient Greek name of a plant, whose scent drove away serpents.

* *Whorls of corymbose many flowered stalks.*

1. *C. officinalis*, Mæch. (Fig. 927.) *Common Calamint*. Whorls of numerous flowers; leaves ovate, nearly entire, hairy, as well as the stem; calyx slightly swollen at the base on the under side, the throat with a ring of a few included hairs, the lower lip with awl-shaped teeth, much longer than the upper.

Melissa calamintha, Linn.—*Thymus calamintha*.—English Botany, t. 1676.—English Flora, vol. iii. p. 110.—Hooker, British Flora, ed. 4. vol. i. p. 234.—Lindley, Synopsis, p. 201.

Root with short creeping suckers. *Stem* erect, about two feet high, branched and leafy, soft, with slender spreading or recurved hairs, obtusely angular, and often of a purplish colour. *Leaves* broadly ovate, somewhat acutely pointed, soft, with pubescence, pale on the under side, the margin entire, or slightly serrated. *Inflorescence* distant whorls, of numerous flowers, sub-corymbose, with forked pedicels, the *bractees* small, awl-shaped. *Calyx* tubular, slightly swollen at the base, on the under side ribbed and hairy, the lower lip with awl-shaped ciliated teeth, longer than the three acute elevated upper ones. *Corolla* somewhat inflated, finely downy, pale purple, the lower lip with purple and white spots. *Seeds* small, roundish.

Habitat.—Hedges, road sides, and waste places, frequent; in England, South of Ireland.

Perennial; flowering in July and August.

The leaves and calyx are scattered over with small glandular dots, which secrete a volatile oil of a sweet aromatic flavour, used to make herb tea, in combination with Peppermint, Balm, Sage, Pennyroyal, &c., forming a warm stomachic drink, useful in a debilitated state of the system.

2. *C. Nep'eta*, Clairvill. (Fig. 928.) *Lesser Calamint*. Whorls of numerous flowers; leaves roundish ovate, obtusely serrated, hairy, as well as the stem; calyx slightly swollen at the base on the under side, the throat with a dense ring of prominent hairs, the lower lip with awl-shaped teeth, scarcely longer than the upper.

Hooker, British Flora, ed. 4. vol. i. p. 234.—*Melissa Nepeta*, Linn.—Lindley, Synopsis, p. 202.—*Thymus Nepeta*, Smith.—English Botany, t. 1414.—English Flora, vol. iii. p. 111.

Stem erect, obtusely angular, purplish branched, and soft, with short spreading pubescence. *Leaves* numerous, on slender footstalks, roundish ovate, obtusely and unequally serrated, paler and more downy on the under side. *Flowers* numerous, in spreading sub-corymbose whorls, on an elongated common stalk. *Bractea* awl-shaped. *Calyx* small, tubular, scarcely swollen at the base, ribbed and downy, the lower lip with angular awl-shaped teeth, scarcely longer than the upper, the throat surrounded with a dense ring of white protruded hairs. *Corolla* smooth, or slightly downy, inflated upwards, pale purple, the lower lip spotted with white and purple dots.

Habitat.—Dry banks and waste places, especially in a sandy or chalky soil in England.

Perennial; flowering in July and August.

This species possesses properties similar to the last, but in a less degree. It is nearly allied to it, and is distinguished by its rounder

more obtuse leaves and serrated margin, the calyx is smaller, more distinctly ribbed, with the lower lip of two short angular awl-shaped teeth, much shorter in proportion to the upper lip than in the last species, and the dense ring of white protruding hairs.

**** Whorls with undivided pedicles.**

3. *C. Acinos*, Clairvill. (Fig. 929.) *Common Basil Thyme*. Whorls of about six flowers, the pedicles simple; stem ascending, branched; leaves small, petiolated, ovate, acute, serrated; calyx swollen at the base, the mouth contracted, and closed when in fruit.

Thymus Acinos, Linn.—English Botany, t. 411.—English Flora, vol. iii. p. 109.—*Acinos vulgaris*, Pers.—Hooker, British Flora, ed. 4. vol. i. p. 233.—*Melissa Acinos*, Benth.—Lindley, Synopsis, p. 201.

Root fibrous. *Stem* decumbent and spreading, much branched, the branches erect, square, the opposite sides alternately hairy. *Leaves* small, on slender stalks, ovate, acute, serrated, with a few teeth towards the point, downy, mostly ciliated towards the base, paler beneath the mid-ribs, and veins prominent. *Inflorescence* axillary whorls of about six flowers, on short simple hairy pedicles. *Calyx* tubular, much swollen at the base on the under side, ribs prominent, downy, the teeth bristle-shaped, ciliated, nearly equal in length, the mouth of the tube surrounded with a dense ring of white hairs, and when in fruit the upper part of the calyx is contracted, and the teeth close pressed. *Corolla* purple, its tube dilated upwards, the lower lip with the middle segments notched. *Seeds* ovate, pointed at the base.

Habitat.—Cultivated fields, not unfrequent, especially in a sandy or chalky soil in England, rare in Scotland.

This is much less aromatic than the other species, and sometimes it is scentless, and the flowers are occasionally white. In poor barren pastures both sheep and oxen will eat this plant, but it does not appear to be a favourite species of food with them.

GENUS V. CLINOPO'DIUM.—LINN. *Wild Basil*.

Nat. Ord. LIBIATÆ. JUSS.

GEN. CHAR. *Flowers* numerous, in whorls, accompanied with linear bracteas, forming a sort of involucre. *Calyx* tubular, thirteen ribbed, nearly equal at the base, two lipped, the upper three toothed, the lower bifid. *Corolla* with the upper lip nearly plane, notched, the lower one trifid, the middle lobe notched.—Name κλιν, *bed*; and πους, *ποδος*, a *foot*; from the fancied resemblance to the castor of a bed's foot.

1. *C. vulgaris*, Linn. (Fig. 930.) *Wild Basil*. Stem erect, simple, downy: leaves ovate or oblong, unequally serrated, downy; whorls



930 *Clinopodium vulgare*



931 *Nepeta cataria*



932 *Glechoma hederacea*



933 *Lamium vulgatum*



934 *Lamium vulgatum v. maculatum*



935 *Lamium purpureum*

equal, many flowered, globose; bracteas numerous, bristle-shaped, ciliated.

English Botany, t. 1401.—English Flora, vol. iii. p. 106.—Hooker, British Flora, ed. 4. vol. i. p. 234.—*Melissa Clinopodium*, Benth.—Lindley, Synopsis, p. 202.

Stem erect, or ascending about a foot high, simple, obtusely angular, mostly pinkish, and more or less clothed with soft pubescence. *Leaves* distant, especially the upper ones, ovate, or ovate oblong, on slender footstalks, unequally and obscurely serrated, more or less clothed with soft pubescence, paler on the under side. *Inflorescence* terminal and axillary, crowded globose whorls of numerous flowers, the *pedicles* short, round, downy, *bracteas* numerous, bristle-shaped, almost as long as the calyx, ciliated, with long slender white hairs. *Calyx* long, tubular, curved downwards from about the middle, ribbed, and clothed with soft hairs, the long ones simple, the shorter tipped with a small globose gland, the teeth slender, awl-shaped. *Corolla* purple, much longer than the calyx, downy externally, the tube dilated upwards, the upper lip short, plane, notched, the lower trifid, the middle lobe large, notched, and with a yellow protuberance at the base on each side. *Seeds* small, pale brown, triangular, ovate.

Habitat.—Hills in dry bushy places; common.

Perennial; flowering in August and September.

The whole plant has a sweet aromatic odour, much less powerful than the Thymes or Mints. The stem is usually simple, sometimes in luxuriant plants it is slightly branched.

GENUS VI. NEP'ETA.—LINN. *Cat-mint*.

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Calyx* tubular, five toothed, many ribbed. *Corolla* with the upper lip plane, bifid, the lower three-cleft, the lateral lobes reflexed, the middle one round, crenated, and concave.—Name said to be derived from *Nepet*, a town in Tuscany.

1. *N. Cata'ria*, Linn. (Fig. 931.) *Cat-mint*, or *Nep*. Stem erect, branched; leaves cordato-ovate, deeply serrato-dentate, petiolated, finely downy, especially beneath; flowers in densely whorled spikes; bracteas awl-shaped, nearly as long as the calyx; calyx ovate, ribbed, the mouth oblique, the teeth subulate; seeds smooth.

English Botany, t. 137.—English Flora, vol. iii. p. 71.—Hooker, British Flora, ed. 4. vol. i. p. 233.—Lindley, Synopsis, p. 202.

Root with numerous branched fibres. *Stem* erect, from two to three feet high, obtusely quadrangular, branched, and clothed like the rest of the plant with close soft hoary pubescence. *Leaves* petiolated,

ovate, with an acute point, and more or less deeply heart-shaped base, deeply and coarsely serrated, green above, white and hoary beneath. *Inflorescence* whorled spikes of numerous crowded flowers, the whorls sub-corymbose, with short round hoary peduncles, and awl-shaped *bracteas*, nearly as long as the calyx, and hoary externally. *Calyx* ribbed, tubular, slightly curved, and the mouth oblique, the teeth nearly equal, awl-shaped, after flowering the calyx is swollen into an ovate form, and the throat contracted. *Corolla* about as long again as the calyx, the throat dilated, downy, white, the lower lip pink, with dark crimson spots. *Stamens* included, the *anthers* crimson. *Seeds* ovate, smooth, angularly compressed.

Habitat.—Waste and shady places; not unfrequent in England, rare in Scotland, Craig Nethan Castle, Glasgow, and between Culross and Kincardine; in Ireland near the river Dodder, above Rathfarnham Bridge, Banks of the Shannon, near Limerick, and other places.

Perennial; flowering in July and August.

The odour arising from this plant is remarkable, from the pleasure which cats seem to derive from it; they paw it, chew it, and roll themselves upon it apparently in the greatest delight. It was observed by Ray, and has since been confirmed by others, that the plant in a flourishing state does not attract their notice; but if it be bruised, rubbed, or languid, they immediately commence their attack upon it, hence has arisen the old English doggrel lines:—

“ If you set it
The cats will eat it,
If you sow it
The cats will not know it.”

When the plant is bruised, or in a languid state, the essential oil on which its properties depend escapes in a more concentrated form, than when it is growing and in a vigorous state, on which account it more readily attracts the attention of the cats.

GENUS VII. GLECHO'MA.—LINN. *Ground-Ivy*.

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Calyx* tubular, five toothed, many ribbed. *Corolla* with the upper lip plane, bifid, the lower three-cleft, the middle lobe, obcordate, plane. *Stamens* with the *anthers* in pairs, forming a cross.—Name from γλῆχων, a kind of Thyme of the Greeks.

1. *G. hederacea*, Linn. (Fig. 932.) *Ground-Ivy*. Leaves kidney-shaped, deeply crenated, whorls of six flowers; calyx tubular, with acute bristle-pointed teeth.

English Botany, t. 853.—English Flora, vol. iii. p. 89.—Hooker, British Flora, ed. 4. vol. i. p. 233.—*Nepeta glechoma*, Benth.—Lindley, Synopsis, p. 202.

Root with long creeping suckers. *Stem* procumbent, simple, obtusely angular, leafy, downy, often of a purplish hue. *Leaves* petiolated, the lower ones small, kidney-shaped, obtusely crenated, the upper ones larger, sub-ovate, heart-shaped, acutely crenated, more or less downy, paler and veiny beneath. *Inflorescence* axillary whorls of mostly six flowers, the *pedicles* short, downy, and the *bracteas* slender, bristle-shaped, and hairy. *Calyx* tubular, numerous ribs, somewhat curved downwards towards the end, the mouth oblique, and the teeth ovate, acute, bristle-pointed, ciliated. *Corolla* downy, the tube long, nearly cylindrical, a pale lilac, the lips violet, spotted in the throat, with small deep violet spots. *Stamens* parallel beneath the upper lip. *Antthers* before bursting converging together into the form of a cross. *Seeds* oblong, smooth, somewhat angularly compressed.

Habitat.—Hedges and dry shady banks; frequent.

Perennial; flowering in April and May.

This is an extremely variable plant in size and hairiness, and the colour of its flowers vary in the intensity of their hue, and they have been observed quite white. The leaves when fresh have a peculiar strong disagreeable smell, and a bitter somewhat aromatic taste. Formerly it was highly esteemed for its numerous virtues, and was used to give ale a peculiar flavour. Its use is now, however, very limited, and chiefly given as a drink for the relief of coughs.

GENUS VIII. LAMIUM.—LINN. *Dead-nettle*.

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Calyx* campanulate, ten ribbed, with five nearly equal teeth. *Corolla* with the upper lip entire, arched, the lower one mostly with one or two teeth on each side at the base, the tube with the throat inflated, and encircled with a hairy ring.—Name from *λαιμος*, the *throat*; so called on account of the shape of the corolla.

* *Tube of the corolla curved*.

1. *L. vulgatum*, Benth. (Fig. 933.) *Common Dead-nettle*. Leaves ovate lanceolate, heart-shaped or truncated at the base, deeply and unequally serrated; calyx with long awl-shaped teeth; corolla with a long tube, curved upwards, with a ring of hairs within, the throat dilated, upper lip oblong, arched, concave, the lateral lobes of the lower one with a long subulate tooth.

Lindley, Synopsis, p. 203.

α. album. Flowers white, tube of the calyx straight.

L. album, Linn.—English Botany, t. 768.—English Flora, vol. iii. p. 90.—Hooker, British Flora, ed. 4. vol. i. p. 231. *α.*—Lindley, Synopsis, p. 203. *β.*

β. lævigatum. Flowers purple, leaves spotless.

L. album, *β.*—Hooker, British Flora, ed. 4. vol. i. p. 231.—*L. lævigatum*, Linn.—*L. rugosum*, Ait.

γ. maculatum. (Fig. 934.) Flowers purple, leaves with white blotches, tube of the calyx somewhat curved.

L. maculatum, Linn.—English Botany, t. 2550—English Flora, vol. iii. p. 91.—*L. album*, *γ.*—Hooker, British Flora, ed. 4. vol. i. p. 231.

Root with fibrous tufts and long spreading suckers. *Stem* erect, square, simple, from twelve to eighteen inches high, more or less clothed with deflexed pubescence. *Leaves* ovate lanceolate, heart-shaped or truncated at the base, the margins coarsely and more or less unequally serrated, hairy, deep green above, paler beneath, spotted with white, or marked with white blotches, the lower ones on long foot-stalks, the upper nearly sessile. *Inflorescence* axillary whorls of from ten to twenty flowers, sessile. *Calyx* tubular, the throat dilated, ribbed, the tube straight, or slightly curved, teeth five, awl-shaped, as long as the tube, mostly ciliated. *Corolla* large, downy externally, white, pink, or purple, in *γ.* the lower lip is beautifully spotted with dark purple dots, the tube long, curved upwards, contracted, and with a hairy ring in the lower part dilated and gaping above, the upper lip elongated, curved, concave, and slightly notched, the lower with the lateral lobes terminating in awl-shaped teeth, reflexed, the middle one reflexed, cordate. *Stamens* inserted into the mouth of the corolla, curved beneath the upper lip. *Anthers* oblong, two celled, hairy, of a black purplish colour.

Habitat.—Hedges, borders of fields, and waste places; common. *β.* naturalized near Bristol, about London, and Fifeshire, in Scotland, *γ.* Fifeshire, Scotland.—*Dr. Dewar.* Meadows near Nottingham.—*Dr. Howitt.*

Perennial; flowering during the summer months.

It is not without considerable reluctance that we unite the above under one species; but after a most careful examination of both our native and foreign species, (for the *γ. maculatum* and *β. lævigatum* are the most frequent in Italy), we cannot find any permanent character by which to distinguish them. The leaves of these, as well as those of the whole genus, have a disagreeable smell, and are refused by all cattle as food. The flowers are a favourite resort of bees, butterflies, &c., from the sweet fluid which is secreted in the bottom of the tube.

** *Tube of the corolla straight.*

2. *L. purpu'reum*, Linn. (Fig. 935.) *Red Dead-nettle.* Leaves ovate, heart-shaped, obtuse, unequally crenated, petiolated, distant below, crowded above, and longer than the whorls of flowers; calyx with lanceolate awl-shaped teeth, spreading after flowering, tube of the corolla straight, with a hairy ring inside, the lateral lobes of the lower lip with two teeth on each side, the upper one subulate.



936 *Lamium amplexicaule.*



937 *Lamium incisum.*



938 *Galeobdolon luteum.*



939 *Galeopsis ladanum*



940 *Galeopsis villosa.*



941 *Galeopsis tetrahit.*

English Botany, t. 769.—English Flora, vol. iii. p. 92.—Hooker, British Flora, ed. 4. vol. i. p. 231.—Lindley, Synopsis, p. 203.

Root of branched fibres. *Stem* procumbent at the base, becoming erect, square, simple, or branched below, roughish, with short recurved hairs, especially above, leafy below and above, naked in the middle. *Leaves* ovate, more or less heart-shaped at the base, unequally crenated, rugose, downy, paler beneath and veiny, the lower ones usually with long slender footstalks, the upper much shorter. *Inflorescence* axillary whorls of numerous sessile flowers, crowded on the top of the stem. *Calyx* tubular, ribbed and hairy, the teeth lanceolate awl-shaped, as long as the tube, hairy, spreading when in seed, and the tube swollen into a campanulate form. *Corolla* with a long slender tube, downy outside, and with a hairy ring near the base within the throat, dilated, the upper lip concave, obtuse, the lower one with the lateral lobes furnished with two teeth each, the upper one awl-shaped, the middle lobe cordate, marked with dark purple spots. *Stamens* covered by the upper lip. *Antthers* two celled, hairy, scarlet. *Seeds* triangular, oblong, pale brown, often beautifully spotted with white.

Habitat.—Borders of fields, gardens, and cultivated places; common everywhere.

Annual; flowering during the summer months.

This very common Annual is variable in the shape of its leaves, and their margin, which is sometimes entire, and at others unequally cut. The flowers also vary in the greater or less intensity of their colour, and are sometimes white. The odour of the whole plant is disagreeable.

3. "*L. intermedium*, Fries. (*intermediate Dead-nettle*). Leaves orbicular, inciso-crenate, the floral ones sessile; teeth of the calyx subulate, longer than the tube; tube of the corolla straight, with a very indistinct hairy ring (none, *Benth.*) lateral lobe of the lower lip with a short tooth."

"Hooker, British Flora, ed. 4. vol. i. p. 231.—Reich. Ic. Bot. t. 224. et. t. 722.—Tyacke in Trans. of Bot. Soc. Ed. 1837, p. 27."

Habitat.—Waste places about Edinburgh.—*Mr. Tyacke*, *Mr. W. H. Campbell*. Garden at Shrewsbury.—*Mr. Leighton*.

Annual; flowering from March to June.

This plant has such slender claims to distinguish it as a species, that we have thought it better to give Sir W. J. Hooker's own description; but even he remarks "it is too nearly allied, I fear, to the following to be deemed a good species."

4. *L. amplexicaule*, Linn. (Fig. 936.) *Henbit Dead-nettle*. Leaves roundish, kidney-shaped, lobed and crenated, the upper ones sessile, embracing the stem, the lower petiolated; calyx with awl-shaped teeth; corolla tube straight, naked within, teeth of the lateral lobes of the lower lip very small or wanting.

English Botany, t. 770.—English Flora, vol. iii. p. 93.—Hooker, British Flora, ed. 4. vol. i. p. 232.—Lindley, Synopsis, p. 204.

Root of long branched fibres. *Stem* much branched, angular, nearly smooth, mostly of a pinkish hue, procumbent at the base, becoming erect. *Leaves* roundish, kidney-shaped, hairy, dark green, paler beneath, the margin deeply crenated or lobed and crenated, the lower ones with rather broad petioles, of greater or less length, mostly smaller than the upper ones, which are sessile, and embracing the stem. *Inflorescence* sessile axillary whorls, of numerous flowers. *Calyx* tubular, very hairy, ribbed, the teeth lanceolate, awl-shaped, about as long as the tube, very hairy, and closing over the mouth when in seed. *Corolla* with a long slender naked tube, straight, the upper lip of a fine deep rose colour, concave, downy, the lower paler, and mostly spotted, the lateral lobes without or with very small obtuse teeth. *Stamens* beneath the upper lip. *Anthers* hairy. *Seeds* triangular, oblong, smooth, pale brown.

Habitat.—Waste places, and cultivated fields and gardens, though not very common.

Annual; flowering from March to June.

The size of the plant is variable, as well as the pubescence, but it is constant in its characters. The early flowers have an abortive corolla, but are otherwise perfect.

5. *L. incisum*, Willd. (Fig. 937.) *Cut-leaved Dead-nettle*. *Leaves* ovate, heart-shaped, petiolated, the upper ones broadly wedge-shaped, with short dilated petioles, all irregularly cut and crenated; teeth of the calyx awl-shaped; corolla tube straight, naked within; teeth of the lateral lobes of the lower lip unequal, the upper one awl-shaped.

English Botany, t. 1933.—English Flora, vol. iii. p. 92.—Hooker, British Flora, ed. 4. vol. i. p. 232.—Lindley, Synopsis, p. 203.—*L. dissectum*, Withering.

Root of long branched fibres. *Stem* erect, or ascending, simple or branched below, angular, nearly smooth. *Leaves* broadly ovate, heart-shaped, the lower ones small, with long petioles, the middle of the stem naked, and the upper leaves crowded at the top with short dilated foot-stalks, more or less hairy. *Inflorescence* terminal axillary whorls of sessile flowers. *Calyx* tubular, slightly ribbed, the teeth equal lanceolate, awl-shaped, as long as the tube, hairy, and ciliated. *Corolla* with a long narrow tube, straight, hairy externally, naked within, the upper lip straight, concave, rounded, or emarginate, the lateral lobes of the lower lip mostly with two small teeth, the upper ones awl-shaped, the middle lobe heart-shaped. *Seeds* triangular, oblong, tapering towards the base, smooth, pale brown.

Habitat.—Waste and cultivated places; not very common.

Annual; flowering in May and June.

GENUS IX. GALEOB'DOLON.—HUDS. *Weasel-snout.*

Nat. Ord. LABIAT'Æ. JUSS.

GEN. CHAR. *Calyx* campanulate, five ribbed, nearly equal, five toothed. *Corolla* with the upper lip incurved, arched, entire, the lower one much smaller, in three acute lobes, the tube with a hairy ring.—Name from γαλήνη, a weasel; and βδολος, a fœtid smell, synonymous with *Galeopsis*, to which genus this was formerly united.

1. *G. lu'teum*, Huds. (Fig. 938.) *Yellow Weasel-snout, or Archangel.*

English Botany, t. 787.—English Flora, vol. iii. p. 97.—Hooker, British Flora, ed. 4. vol. i. p. 230.—*Lamium Galeobdolon*, Crantz.—Lindley, Synopsis, p. 204.

The only known species of the genus. *Root* with creeping suckers. *Stem* ascending from one to two feet high, obtusely angular, simple, hairy, especially above. *Leaves* distant below, more numerous above, on spreading footstalks, variable in form, from roundish ovate to narrow lanceolate, clothed with close soft down, dark green above, paler beneath, the margins coarsely and often unequally serrated. *Inflorescence* axillary whorls of numerous sessile flowers. *Calyx* tubular, slightly ribbed, hairy, unequally five toothed, the lower ones spreading, or somewhat curved downwards, the upper one curved upwards. *Bracteas* linear, hairy, shorter than the calyx. *Corolla* hairy, of a beautiful yellow colour, the tube rather longer than the calyx, the upper lip elongated, curved, concave, entire, fringed on the margin with soft silky hairs, the lower lip recurved, of three entire oblong lobes, the middle one the largest and longest, elegantly spotted with scarlet, and the base and middle lobe orange colour. *Seeds* pear-shaped, somewhat angular, brown.

Habitat.—Woods, groves, and shady places; frequent in England, South of Scotland, and Ireland.

Perennial; flowering in May and June.

This is nearly allied to the *Lamiums*. The flowers are very beautiful, the more so when grown in a very shady situation. The whole herbage has a disagreeable smell; it does not appear to be the favourite food of any animal, and is not applied to any particular use.

GENUS X. GALEOP'SIS.—LINN. *Hemp-nettle.*

Nat. Ord. LABIAT'Æ. JUSS.

GEN. CHAR. *Calyx* campanulate, equal, with fine bristle pointed teeth. *Corolla* with the throat inflated, the upper lip arched, the

lower of three unequal lobes, having two teeth on the upper side, the middle lobe obtuse, or emarginate. *Anthers* opening with valves.—Name from γάλην, a weasel; and ὄψις, aspect or appearance; from the supposed resemblance in the corolla to the snout of an animal.

* *Stem not swollen below the joint.*

1. *G. La'danum*, Linn. (Fig. 939.) *Red Hemp-nettle*. Stem with close pressed hairs, not swollen below the joints; leaves lanceolate, or oblong lanceolate, serrated, or nearly entire; upper lip of the corolla slightly crenated.

English Botany, t. 884.—English Flora, vol. iii. p. 94.—Hooker, British Flora, ed. 4. vol. i. p. 230.—Lindley, Synopsis, p. 202.

Root zig-zag, with numerous branched fibres. *Stem* erect, from one to two feet high, much branched, obtusely angular, rough, with close pressed hairs, mostly of a deep red colour, and not swollen beneath the joints. *Leaves* lanceolate, oblong lanceolate, narrow, and sometimes almost linear, the margin more or less toothed, sometimes entire, petioles slender, dark green, and nearly smooth above, paler, with a prominent mid-rib and lateral veins, and rough, with close pressed hairs on the under side. *Inflorescence* dense terminal and axillary whorls of numerous flowers. *Calyx* bell-shaped, hairy, ribbed, the teeth nearly equal, awl-shaped, bristle pointed. *Bracteas* linear, hairy, and as well as the calyx sometimes viscid. *Corolla* with a slender hairy pale coloured tube, the lips deep pink, variegated with crimson and white spots, the throat dilated, the upper lip narrow, arched, concave, slightly crenated or notched at the end, the lower of three deep lobes, the lateral ones roundish, and smaller than the middle heart-shaped one. *Stamens* curved beneath the upper lip. *Anthers* roundish, two valved. *Seeds* triangular, oblong, dark, brown, smooth.

Habitat.—Dry sandy and rubbishy places; not unfrequent in England and Ireland; rare in Scotland.

Annual; flowering from August to October.

This is readily distinguished from our other species by its narrow spreading variable leaves, wiry, much branched and spreading stem, and scarcely notched upper lip of the corolla.

2. *G. villosa*, Huds. (Fig. 940.) *Downy Hemp-nettle*. Stem with close pressed hairs, not swollen below the joints; leaves ovate lanceolate, serrated; upper lip of the corolla deeply notched.

English Botany, t. 2353.—English Flora, vol. iii. p. 95.—Hooker, British Flora, ed. 4. vol. i. p. 230.—Lindley, Synopsis, p. 203.—*G. grandiflora*, Roth.—*G. ochroleuca*, Lam.

Root zig-zag, with numerous branched fibres. *Stem* erect, from one to two feet high, branched, obtusely angular, and clothed with recurved close pressed hairs. *Leaves* of the stem ovate, those of the branches



942 *Galeopsis versicolor.*



943 *Betonica officinalis.*



944 *Stachys germanica.*



945 *Stachys sylvatica.*



946 *Stachys ambigua.*



947 *Stachys palustris.*

ovate lanceolate, pale green, mostly equally serrated, petiolated, clothed with soft close pressed pubescence, especially beneath. *Inflorescence* terminal and axillary whorls of numerous crowded flowers. *Calyx* bell-shaped, very downy, almost shaggy, the teeth lanceolate, bristle pointed. *Bracteas* narrow, awl-shaped, bristle pointed, downy, reflexed. *Corolla* large, pale sulphur colour, the tube long, narrow below, dilated upwards, downy, upper lip short, concave, deeply notched or crenated on the margin, the lower lip large, spreading, three lobed, crenated, the palate yellow, and sometimes the upper lip is of a blueish colour. *Stamens* curved beneath the upper lip. *Anthers* two valved, and slightly bearded. *Seeds* rather large, triangular, ovate, a dull paleish brown, smooth.

Habitat.—Sandy fields and waste places, rare; Yorkshire, Nottinghamshire, Lancashire, and Bangor, in Wales.

Annual; flowering in July and August.

** *Stem swollen below the joint.*

3. *G. Tetrahit*, Linn. (Fig. 941.) *Common Hemp-nettle*. Stem bristly, swollen below the joints; leaves ovate, acuminate, serrated; corolla with the upper lip ovate, nearly straight, notched, or entire.

English Botany, t. 207.—English Flora, vol. iii. p. 95.—Hooker, British Flora, ed. 4. vol. i. p. 231.—Lindley, Synopsis, p. 203.

Root with spreading branched fibres. *Stem* erect, branched, obtusely angular, swollen below the joints, rough, with bristles pointed downwards, especially beneath the joints. *Leaves* ovate, mostly with a long acuminate point, strongly serrated, more or less rough, with close pressed stout bristly hairs, paler beneath, with prominent mid-rib and lateral veins. *Inflorescence* terminal and axillary whorls of numerous flowers. *Calyx* bell-shaped, ribbed, bristly, the teeth equal, long, sharp, bristly. *Bracteas* awl-shaped, ciliated bristles. *Corolla* about twice as long as the calyx tube, downy, pale purple, the throat somewhat inflated, upper lip slightly curved, concave, entire or notched, or waved on the margin, the lower lip three lobed, the lateral ones ovate, acute, the middle one obtuse, or angular, flat, mostly crenated on the margin. *Ovary* swollen when in seed, the throat contracted. *Seeds* roundish ovate, beautifully speckled with dark and pale brown, quite smooth, shining.

Habitat.—Waste and cultivated grounds; frequent.

Annual; flowering in July and August.

4. *G. versicolor*, Curt. (Fig. 942.) *Large-flowered Hemp-nettle*. Stem bristly, swollen below the joints; leaves oblong, ovate, acuminate, serrated; corolla with the upper lip inflated, the margin crenated.

English Botany, t. 667.—English Flora, vol. iii. p. 96.—Hooker, British Flora, ed. 4. vol. i. p. 230.—Lindley, Synopsis, p. 203.—*G. Tetrahit*, β . Linn.

Root of numerous branched spreading fibres. *Stem* erect, branched, rough, with deflexed bristly hairs, obtusely angular, somewhat swollen

and reddish below the joints. *Leaves* ovate oblong, with a long acuminate point, strongly serrated, more or less rough, with bristly hairs, dark green above, paler beneath, the mid-rib and lateral branches prominent. *Inflorescence* axillary and terminal crowded whorls. *Calyx* large, bell-shaped, ribbed, rough, with bristly hairs, the teeth long, sharp, bristly, awl-shaped, ciliated. *Bracteas* bristle-shaped, hairy. *Corolla* much larger than the last species, yellow, hairy, the tube narrow at the base, much inflated upwards, the upper lip broad, dilated, concave, having an inflated appearance, the margin copiously crenated, the lower lip plane, spreading, three lobed, the two lateral ones oblong, even, the middle one large, sub-cordate, with two orange swollen protuberances at the base, the sides mostly crenated, white, forming a border round a deep purple irregular shaped blotch, the palate orange colour, spotted with crimson dots. *Stamens* curved beneath the upper lip. *Anthers* two celled, somewhat bearded. *Seeds* ovate, somewhat angularly compressed, pale, speckled.

Habitat.—Sandy corn fields and banks in various parts of England, but not common, abundant in Scotland and Ireland.

Annual; flowering in July and August.

The flowers of this species are extremely beautiful and large, and would adorn the flower border; but the herbage is rough, rank, and uninviting in its appearance.

GENUS XI. BETO'NICA.—LINN. *Betony*.

Nat. Ord. LABIAT'Æ. JUSS.

GEN. CHAR. *Calyx* ovate, ten ribbed, with five awned teeth. *Corolla* cylindrical, the tube long, naked within, upper lip concave, the lower three cleft, spreading, the middle lobe obtuse.—“Name altered from *Bentonic*, in Celtic; *Ben* meaning *head*, and *ton* *good* or *tonic*.”

1. *B. officinalis*, Linn. (Fig. 943.) *Wood Betony*. Leaves oblong, ovate, cordate at the base, dentato-crenated, the lower on long foot-stalks, the upper distant; spike oblong, interrupted; corolla downy; stamens shorter than the upper lip.

English Botany, t. 1142.—English Flora, vol. iii. p. 98.—Hooker, British Flora, ed. 4. vol. i. p. 232.—*Stachys Betonica*, Benth.—Lindley, Synopsis, p. 205.

Root twisted, somewhat woody, with branched spreading fibres. *Stem* erect, or curved at the base, from one to two feet high, simple, obtusely angular, and more or less rough, with reflexed bristly pubescence. *Leaves* oblong, ovate obtuse, or ovate acute, the margins equally crenated or toothed, the base rounded or heart-shaped, dark green, paler beneath, and more or less rough, with pubescence, the

lower leaves are numerous, on long channeled footstalks, the upper very distant, and on short ones. *Inflorescence* crowded sessile whorled flowers, in an interrupted or dense oblong terminal spike. *Flowers* numerous. *Calyx* ovate, ten ribbed, hairy, the teeth equal, bristle or awn-shaped, hairy. *Bracteas* narrow, lanceolate, about as long as the calyx, ciliated. *Corolla* with a long cylindrical pink tube, downy, and curved downwards from below the middle, the lips deep pink, or purple, the upper lip ascending, concave, entire or notched, the lower reflexed, three-cleft, the lateral lobes short, oblong, obtuse, the middle one ovate, more or less crenated or toothed. *Stamens* scarcely longer than the tube. *Anthens* two valved, smooth.

Habitat.—Woods, thickets, and shady places; common.

Perennial; flowering in July and August.

The leaves and stem, when bruised, have an agreeable but weak smell, and are of a slight warm aromatic bitter and astringent taste; the roots are much more powerful than the herbage, having a very bitter nauseous taste, producing, when taken even in small doses, vomiting and purging. Perhaps few plants have had a greater reputation for many properties than Betony, but like many others which the old physicians so loudly extolled, it has fallen into almost entire disuse. The powdered leaves and stem are occasionally used as an ingredient in sternutatory powders, for the purpose of exciting sneezing, or are smoked like tobacco. To enumerate the many forms which are given for the administration of this plant, and the number of the diseases which it was useful in curing, or thought to have been so, would be a task useless, it is true, but still curious; for in the history of plants, and the application of them to the purposes of life, we may read the progress which was making in the cultivation of the mind of man, and see the foundations upon which the superstructures of science are erected. Upon the virtues of this plant Antonius Musa, physician to the Emperor Augustus, wrote a volume, in which he states it to be a remedy of infinite virtue for no less than forty-seven disorders. Hence has arisen the Italian proverb, “Tu hai pui virtù, che la Betonica”—*You have more virtues than Betony*.

GENUS XII. STACHYS.—LINN. *Wound-wort*.

Nat. Ord. LABIAT'Æ. JUSS.

GEN. CHAR. *Calyx* sub-campanulate, ten ribbed, with five nearly equal teeth. *Corolla* with the upper lip concave, entire, the lower one three-cleft, the two lateral ones reflexed, the middle one obovate or obcordate, the tube with a hairy ring inside.—Name from *σταχυς*, a spike; so called from the form of the inflorescence.

1. *S. Germani'ca*, Linn. (Fig. 944.) *Downy Wound-wort*. Stem erect, densely woolly; leaves petiolated, ovate oblong, heart-shaped at the base, the upper sessile, lanceolate, densely silky; whorls many flowered; calyx teeth ovate, acuminate, bristle pointed.

English Botany, t. 829.—English Flora, vol. iii. p. 101.—Hooker, British Flora, ed. 4, vol. i. p. 232.—Lindley, Synopsis, p. 205.

Root tufted. *Stem* erect, from two to three feet high, leafy, branched, obtusely angular, thickly clothed with soft woolly pubescence, reflexed. *Leaves* numerous, pale green, clothed especially beneath, with soft silky woolliness, the lower ones with long channeled footstalks, oblong, ovate, obtuse, heart-shaped at the base, crenated, the upper ones sessile, or nearly so, lanceolate, and serrated. *Inflorescence* numerous flowered whorls, sessile, axillary, the lower ones distant, the upper crowded into a spike. *Calyx* large, very woolly, the teeth ovate, acuminate, or lanceolate, terminated in a sharp bristly point. *Bracteas* awl-shaped, very woolly. *Corolla* pale purple, woolly externally, the tube as long again as the calyx, cylindrical, the upper lip concave, entire, or slightly notched, the lower three-cleft, the lateral lobes entire, reflexed, the middle one oblong, entire, crenated, or notched on the margin, striped, and often spotted with white. *Stamens* with hairy filaments, shorter than the upper lip. *Anthers* large, two celled. *Seeds* ovate, angular, pale brown, smooth.

Habitat.—Fields and hedges by road sides in England, rare; chiefly in Oxfordshire and Bedfordshire.

Perennial; flowering in September.

This species is remarkable for the dense soft silky woolliness with which it is clothed; the flowers are small, compared to the size of the plant, and of a pale pink colour. It is frequently cultivated on the flower border, but is not a very showy plant.

2. *S. sylvati'ca*, Linn. (Fig. 945.) *Hedge Wound-wort*. Stem erect, solid, branched and hairy, above glandulose; leaves petiolated, ovate, heart-shaped, acuminate, serrated; whorls of six flowers; calyx with triangular awl-shaped bristle pointed teeth.

English Botany, t. 416.—English Flora, vol. iii. p. 99.—Hooker, British Flora, ed. 4, vol. i. p. 232.—Lindley, Synopsis, p. 204.

Root fibrous, with creeping underground stems. *Stem* erect, from two to three feet high, simple, or somewhat branched, solid, leafy, rough, with spreading or reflexed hairs, simple below, glandulous above. *Leaves* all on footstalks, of a thin texture, dark green, paler beneath, clothed with soft silky hairs, the margin acutely serrated, the lower leaves broad, heart-shaped, the upper ones narrower, and the floral ones lanceolate. *Inflorescence* terminal and axillary, six flowered whorls, the upper ones crowded, the lower distant. *Calyx* woolly, tubular, becoming bell-shaped, ribbed, the teeth triangular at the base, awl-shaped, bristle pointed. *Bracteas* narrow, lanceolate,

about as long as the calyx. *Corolla* tube cylindrical, somewhat swollen on the under side above the base, the lips a dark reddish purple, variegated with darker stripes and spots, intermixed with white, the upper lip horizontal, oblong ovate, concave, the lower with three lobes, the two lateral ones ovate, entire, reflexed, the middle one broad, sub-cordate. *Stamens* curved beneath the upper lip.

Habitat.—Groves, under hedges, and shady places; common.

Perennial; flowering in July and August.

The whole plant has, when rubbed, an unpleasant strong foetid odour, disagreeable to most people. It does not appear to be applied to any particular use.

3. *S. ambigua*, Smith. (Fig. 946.) *ambiguous Wound-wort*. Stem erect, hollow, branched, rough, with reflexed hairs; leaves petiolated, oblong, lanceolate, with a heart-shaped base, serrated; whorls of six flowers; calyx with triangular awl-shaped bristle-pointed teeth.

English Botany, t. 2089.—English Flora, vol. iii. p. 99.—Hooker, British Flora, ed. 4. vol. i. p. 232.—*S. palustris*.—Lindley, Synopsis, p. 204.

This is nearly allied to the last species, and seems intermediate between it and the following. It is distinguished by the stalk of the leaves, which are shorter than *S. sylvatica*; and in *S. palustris* they are very short or wanting, and the shape of the leaves, the hollow stems, and not viscid branches, distinguish it from *S. sylvatica*.

Habitat.—Waste and cultivated ground; abundant in Scotland; near Poynings, Sussex; Sheepshead, and other places, Leicestershire; near Workop and Mansfield, Nottinghamshire; and frequent in fields about Dublin, Ireland.

Perennial; flowering in August and September.

4. *S. palustris*, Linn. (Fig. 947.) *Marsh Woundwort*. Stem erect, hollow, simple, rough, with reflexed hairs; leaves sessile and semi-amplexicaul above, shortly stalked below, lanceolate, acute, with a heart-shaped base, serrated; whorls of from six to twelve flowers; calyx with triangular awl-shaped bristle-pointed teeth.

α. vulgaris. Leaves obtusely serrated, sessile, thickly clothed with close soft silky pubescence; whorls of numerous flowers.

English Botany, t. 1675.—English Flora, vol. iii. p. 100.—Hooker, British Flora, ed. 4. vol. i. p. 232.—Lindley, Synopsis, p. 204.

β. dubia. (Fig. 948.) Leaves lanceolate, acuminate, dark green, and slightly hairy above, more so but paler beneath, acutely serrated, the upper ones sessile, or nearly so, the lower with short stalks; whorls of about six flowers.

Root of branched fibres, with long creeping fleshy somewhat tuberous suckers. *Stem* erect, hollow, simple, square, and more or less clothed with spreading or deflexed silky hairs. *Leaves* numerous, opposite lanceolate, or linear lanceolate, heart-shaped at the base, sessile, and

more or less embracing the stem, or the lower ones with short footstalks and the upper sessile, the margin obtusely or acutely serrated, paler on the under side, and more or less thickly clothed with close soft woolly pubescence. *Inflorescence* terminal and axillary whorls of from six to twelve sessile flowers. *Calyx* sub-campanulate, ribbed and hairy, the teeth nearly equal, triangular at the base, with an awl-shaped bristle point, the hairs mostly terminated in a gland. *Corolla* with a gradually inflated tube, downy externally, upper lip concave, entire or notched, the lower three-cleft, the lateral lobes ovate, entire, the middle oblong, entire or notched, striated and spotted with dark purple and white. *Stamens* curved beneath. *Seeds* smooth, shining, dark olive, ovate, angular.

Habitat.—Ditches, banks of rivers, wet fields, and marshy places, frequent.

Perennial; flowering in August.

The whole plant has, when bruised, a strong disagreeable odour, and was formerly much esteemed as a vulnerare: old Gerard says that for the knowledge of its virtues he was indebted to a clown, hence he gave the plant the common name of the *Clown's Woundwort*. It is said that the tender shoots, when blanched, form an excellent vegetable, having somewhat the flavour of asparagus, but it is not cultivated. In wet cultivated fields it is a very troublesome weed, and difficult of extirpation, on account of its long creeping suckers, which put out stems from every joint that is left in the ground, and these forming fleshy knobs upon them, enable the plant to bear without injury for a considerable length of time the drought of summer, when the soil becomes dry, and incapable of supplying them with moisture.

5. *S. arven'sis*, Linn. (Fig. 949.) *Corn Woundwort*. Stem weak, branched at the base, rough, with spreading hairs; leaves petiolate, ovate, heart-shaped, obtuse, crenated, and slightly hairy; whorls of six flowers; corolla scarcely longer than the calyx, which has lanceolate bristle-pointed teeth.

English Botany, t. 1154.—English Flora, vol. iii. p. 101.—Hooker, British Flora, ed. 4. vol. i. p. 233.—Lindley, Synopsis, p. 205.

Root of slender branched fibres. *Stem* weak, recumbent and branched at the base, or erect and simple, angular, rough, with spreading hairs, sometimes almost smooth. *Leaves* opposite, crenated, scattered over with hairs, the lower ones ovate, obtuse, with a heart-shaped base, and on footstalks, the upper nearly sessile, ovate, reflexed, *Inflorescence* whorls of about six sessile flowers, mostly distant, sometimes crowded into a terminal spike. *Calyx* campanulate, ribbed and veiny, hairy, the teeth nearly equal, large, lanceolate, bristle-pointed, *Corolla* scarcely longer than the calyx, the tube cylindrical, the upper lip short, ovate, obtuse, or slightly notched, the lower three-cleft, the two lateral lobes ovate, the middle one roundish ovate, the palate white,



948 *Stachys palustris* v. *dubia*.



949 *Stachys* *arvensis*.



950 *Stachys annua*.



951 *Ballota nigra*.



952 *Leonurus cardiaca*.



953 *Marrubium vulgare*.

spotted with dark purple. *Stamens* curved beneath the upper lip. *Seeds* oblong, triangular, a dull glaucous black.

Habitat.—Fields, especially in a sandy soil; frequent.

Annual; flowering in July and August.

A small pale coloured plant, readily distinguished from all the other species by its small corolla, ovate deeply crenated leaves; but like most other annuals very variable in its size, according to the more or less luxuriant soil in which it has grown. The whole plant has an unpleasant odour when bruised, and has not been applied to any particular use.

6. *S. ann'ua*, Linn. (Fig. 950.) *Pale Annual Woundwort*. Stem erect, branched to the top, downy; leaves oblong, lanceolate, crenato-serrate, downy, the lower ones petiolated, the upper sessile, almost entire, with an acuminate point; whorls of about six flowers, crowded above into a spike; calyx hairy, with equal lanceolate bristle-pointed teeth.

English Botany, t. 2669.—Hooker, British Flora, ed. 4. vol. i. p. 233.—Lindley, Synopsis, p. 204.

Root of numerous slender branched fibres. *Stem* erect, or ascending a foot or more high, angular, branched, rough, with spreading hairs, especially above. *Leaves* numerous, the lower oblong lanceolate, tapering into a footstalk, mostly three ribbed at the base, the upper smaller, lanceolate, and nearly sessile, serrated, all paler beneath than above, with a prominent mid-rib, and more or less clothed with pubescence. *Inflorescence* whorls of about six flowers, axillary and distant, or crowded into a terminal spike. *Calyx* bell-shaped, ribbed and hairy, the teeth nearly equal, lanceolate, bristle pointed. *Bracteas* small, awl-shaped, hairy. *Corolla* with an inflated tube, as long or longer than the calyx, downy, upper lip large, crenated or crisped on the margin, the lower three lobed, the lateral ones ovate, somewhat reflexed, slightly crenated on the margin, the middle one broad, spreading, deeply notched. *Stamens* shorter than the upper lip. *Seeds* roundish, angular, black, smooth, glossy.

Habitat.—A field between Gadshill and Rochester.—*J. Woods, Esq. Hooker*.

Annual; flowering in August.

This is a doubtful native plant, for "the field," Sir W. J. Hooker observes, was "cropped with white wheat, and it is possible that the seeds may have been introduced with the grain of that plant from the Continent." It is by no means an uncommon plant in corn fields in France, Germany, and Italy, but it grows higher and more robust than with us.

GENUS XIII. BALLO'TA.—LINN. *Horehound*.

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Calyx* salver-shaped, ten ribbed, with five broad bristle pointed teeth. *Corolla* with the upper lip concave, the lower three-cleft, the middle lobe obcordate, the tube with a hairy ring internally.—Name from βαλλων, from βαλλω, to reject or throw away from the very disagreeable smell which the whole plant has when rubbed or bruised.

1. *B. nīgra*, Linn. (Fig. 951.) *Stinking Black Horehound*. Leaves ovate, petiolated, crenato-serrated; calyx with broad ovate acute bristle pointed teeth.

English Botany, t. 46.—English Flora, vol. iii. p. 102.—Hooker, British Flora, ed. 4. vol. i. p. 230.—Lindley, Synopsis, p. 205.

β. alba. Flowers white, the whole plant pale green, and clothed with close slight pubescence, almost smooth.

B. alba, Linn.—*B. nigra*. *β.* Hudson.

Root spreading. *Stem* erect, from two to three feet high, much branched and spreading, square, hollow, often of a purplish colour, clothed with soft silky shaggy reflexed hairs, or with close down, almost smooth. *Leaves* numerous, roundish ovate, the lower ones heart-shaped at the base, the footstalks broad and channeled, variable in length, strongly and unequally crenated or crenato-serrated, hoary, with close silky pubescence, almost woolly, paler beneath than above, in *β. alba* the leaves and whole plant paler, and the pubescence close, thin, almost wanting. *Inflorescence* stalked axillary whorls of numerous crowded flowers. *Bracteas* bristle-shaped, downy. *Calyx* salver-shaped, the tube strongly ribbed, the throat dilated and veiny, the teeth ovate, acute, bristle pointed, hairy. *Corolla* pale purple, or white, scarcely longer than the calyx, downy, upper lip oblong, concave, notched, the lower three lobed, variegated with dark purple, the lateral lobes oblong, the middle broad, deeply notched. *Stamens* curved beneath the upper lip. *Anthers* ovate, of two valves. *Seeds* triangular, oblong, smooth, dark brown, almost black.

Habitat—Waste places, under hedges, &c., frequent; *β. alba* much less common.

Perennial; flowering in July and August.

Stinking Horehound is considered a useful remedy in scurvy and many other cutaneous eruptions by the country people, who boil it and use it as a vegetable. It is not, however, used so much now as formerly.

GENUS XIV. LEONURUS.—LINN. *Motherwort.*

Nat. Ord. LABIATÆÆ. JUSS.

GEN. CHAR. *Calyx* ovate, five to ten ribbed, with five spreading awned teeth. *Corolla* with the upper lip concave, very hairy, the lower one three-cleft, or entire, acute, the tube with a hairy ring internally.—Name from *λεων*, a lion; and *ουρα*, a tail; from the fancied resemblance of the flowering branches to a lion's tail.

1. *L. cardiaca*, Linn. (Fig. 952.) *Motherwort.* Stem erect; leaves petiolated, the lower ones deeply five lobed and toothed, the upper lanceolate, entire; calyx smooth, the teeth spreading, pungent.

English Botany, t. 286.—English Flora, vol. iii. p. 105.—Hooker, British Flora, ed. 4. vol. i. p. 230.—Lindley, Synopsis, p. 204.

Stem erect, from two to three feet high, simple or branched quadrangular, furrowed, the angles downy, hollow. *Leaves* opposite, on slender downy footstalks, the lower ones deeply five lobed, and unequally and deeply toothed, the upper ones three lobed and entire, or nearly so, the uppermost entire, lanceolate, dark green, and nearly smooth above, paler and thickly clothed with close soft down beneath. *Inflorescence* axillary whorls of numerous crowded sessile flowers. *Calyx* ovate, smooth, ribbed, contracted at the mouth, the teeth equal, spreading, angular at the base, terminating in an awl-shaped pungent point. *Bractææ* awl-shaped, pungent. *Corolla* tube about as long as the calyx tube, white or pale pink, the lips deeper pink, the upper one oblong, obtuse, concave, entire, woolly, the lower one spotted with deep crimson, three lobed, entire, the middle one rather longer than the others. *Stamens* curved beneath the upper lip. *Anthers* roundish oblong, incumbent.

Habitat.—About hedges and waste places in various parts of England, but not common; Stirling Castle, and about Edinburgh, Scotland; between Foaty and Cork, Ireland.—*Mr. J. Drummond.*

Perennial; flowering in August.

The leaves of *Motherwort* have a disagreeable smell and a bitter taste: it was formerly in great reputation as a tonic and diuretic, and said to be serviceable in disorders of the stomachs of children, hence probably has arisen its common name of *Motherwort*, and from its reputation as a remedy for the cure of heartburn it has received the specific name of *Cardiaca*. It is not now used, except by country people, in whose gardens it may be occasionally found.

GENUS XV. MARRUBIUM.—LINN. *White Horehound.*

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Calyx* with ten ribs, and five or ten awned teeth, spreading when in fruit, the throat hairy. *Corolla* with the upper lip straight, cloven, the lower one reflexed, three lobed, the middle, lobe largest, emarginate. *Nuts* with the end triangular, truncated.—Name of doubtful origin.

1. *M. vulgare*, Linn. (Fig. 953) *White Horehound*. Stem erect, bushy; leaves roundish ovate, petiolated, unequally crenated, tomentose, and reticulated with veins; whorls of numerous axillary crowded flowers; calyx with ten bristle-shaped smooth hooked teeth.

English Botany, t. 410.—English Flora, vol. iii. p. 104.—Hooker, British Flora, ed. 4. vol. i. p. 233.—Lindley, Synopsis, p. 205.

Root somewhat woody. *Stem* erect, or ascending from one to two feet high, more or less branched, obtusely angular, thickly clothed with fine white woolly pubescence. *Leaves* numerous, opposite, roundish ovate, somewhat tapering at the base into a footstalk, the upper ones sessile, the margin unequally crenated, clothed with soft silky woolly pubescence, especially on the under side, and netted with veins. *Inflorescence* axillary whorls of numerous crowded sessile flowers. *Calyx* cylindrical, ten ribbed, very woolly, with ten awl-shaped bristle-pointed teeth, smooth towards the ends, and hooked at the extremity. *Bractes* awl-shaped, woolly. *Corolla* white, downy, the upper lip straight, deeply cleft into two linear lobes, the lower lip three lobed, the lateral ones small, ovate, acute, the middle one large, inversely heart-shaped, and sometimes notched. *Stamens* shorter than the upper lip. *Anthers* small, oblong. *Seeds* inclosed in the hardened calyx, contracted at the mouth, ovate oblong, triangular, smooth, pale brown.

Habitat.—Waste places and road sides; common in England, less frequent in Scotland and Ireland.

Perennial; flowering in August.

The leaves of this plant have a strong aromatic disagreeable smell, and a very bitter durable taste, on account of which tonic stimulating properties it has been strongly recommended in cases of hysteria, &c. The leaves made into an infusion have been given with benefit in chronic catarrh, and some other kinds of asthma; and made into a syrup, or candied with sugar, it forms an excellent and commonly used remedy in slight coughs. An extract is also made of the leaves, and given in doses of from ten to thirty grains twice a day. Horehound is not now so much esteemed as a medicine as it was some time since, but it is a remedy of considerable benefit as a tonic expectorant.



954

Melittis melissophyllum.



955

Melittis melissophyllum v. *guttatum*



956

Scutellaria galericulata.



957

Scutellaria *minor.*



958

Prunella *vulgaris.*



959

Ajuga reptans.

GENUS XVI. MELITTIS.—LINN. *Bastard Balm.*

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Calyx* large, campanulate, upper lip two or three toothed, the lower with two ovate lobes. *Corolla* with the upper lip nearly flat, entire, the lower one of three nearly equal ovate lobes. *Anthers* in pairs, disposed in a cruciform manner.—Name from *μελισσα*, Att. *μελιτα*, a *Bee*; so called from its yielding honey to bees.

1. *M. Melissophyllum*, Linn. (Fig. 954.) *Bastard Balm.* Leaves ovate oblong, crenato serrated; upper lip of the calyx with two or three teeth.

α. vulgaris. Leaves oblong ovate; corolla with the middle lobe of the lower lip purple, with a white margin.

M. grandiflora.—English Botany, t. 636.—English Flora, vol. iii. p. 112.

β. guttatum. (Fig. 955) Leaves broadly ovate, somewhat heart-shaped at the base; flowers purplish, spotted.

M. Melissophyllum.—English Botany, t. 577.—English Flora, vol. iii. p. 112.

Root with somewhat creeping suckers. *Stem* erect, from one to two feet high, square, rough, with spreading or deflexed hairs, simple or branched. *Leaves* numerous, opposite, ovate, or ovate oblong, rounded or heart-shaped at the base, the margin more or less coarsely toothed or crenated, and somewhat hairy, paler beneath, the lower on longish footstalks, the upper with shorter ones. *Inflorescence* of from one to three stalked axillary flowers in the upper part of the stem. *Calyx* large, bell-shaped, the upper lip two or three toothed, reticulated with veins, hairy, often coloured. *Corolla* large, downy externally, the tube long, cylindrical, of a pale yellow, or often purplish, the upper lip plane, entire, yellowish cream colour, the lower three-cleft, the lateral ones oblong, the middle one broad, somewhat heart-shaped or crenated on the margin, all spotted with dark purple, or the lateral ones yellow, and the middle one with a large purple spot and white narrow margin. *Stamens* shorter than the corolla, curved beneath the upper lip. *Anthers* oblong, two valved.

Habitat—Woods and shady places in the South of England. Torquay.—*Miss Griffiths.* Cornwall, Hampshire, &c.

Perennial; flowering in May and June.

The flowers of the *Bastard Balm* are the largest and most beautiful of this tribe of our plants. It is easy of cultivation in an open shady situation, and flowers freely, the corolla varying in its colour, and the spots upon its lower lip. Its use as a medicinal plant is now very limited, though it has the reputation of being useful as a diuretic, and is made into a tea for a drink in fevers, &c.

GENUS XVII. SCUTELLARIA.—LINN. *Skull-cap.*

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Calyx* two lipped, the lips entire, closed after flowering, having a concave scale on the upper side. *Corolla* with a long tube, the upper lip concave, three-cleft, the lower one trifid.—Name from *Scutella*, a dish or platter; so called from the curious shaped calyx, with its appendage, which somewhat resembles a dish or cup.

1. *S. galericulata*, Linn. (Fig. 956) *Common Skull-cap*. Leaves oblong lanceolate, cordate at the base, crenato-dentate; flowers axillary; tube of the corolla curved almost at right angles near the base.

English Botany, t. 525.—English Flora, vol. iii. p. 113.—Hooker, British Flora, ed. 4. vol. i. p. 235.—Lindley, Synopsis, p. 205.

Root of numerous whorled fibres. *Stem* erect, branched or simple, square, with sharp angles, mostly of a purple colour, and smooth, or somewhat hairy. *Leaves* numerous, opposite, on short footstalks, oblong lanceolate, heart-shaped at the base, more or less distinctly and remotely crenated, or obtusely toothed, a cheerful green, paler beneath, often purple, and smooth, or scattered over with short pubescence. *Inflorescence* axillary flowers, solitary, or in pairs, nearly sessile. *Calyx* smooth, or clothed with short simple hairs, enlarged when in seed. *Corolla* downy, pale blue, the tube curved upwards from the mouth of the calyx at almost right angles, dilated towards the mouth, the upper lip three lobed, concave, obtuse, the lateral lobes entire, the middle one notched, lower lip shorter, recurved in three lobes, often crenated on the margin, striated with dark blue, and variegated with white. *Stamens* short, curved beneath the upper lip. *Seeds* small, ovate, rough, pale brown.

Habitat.—Stony banks of rivers, ditches, &c.; common.

Perennial; flowering in July and August.

2. *S. mi'nor*, Linn. (Fig. 957.) *Lesser Skull-cap*. Leaves oblong lanceolate, obtuse, cordate or rounded at the base, nearly sessile, entire, or one or two toothed; flowers axillary; tube of the corolla straight.

English Botany, t. 524.—English Flora, vol. iii. p. 114.—Hooker, British Flora, ed. 4. vol. i. p. 235.—Lindley, Synopsis, p. 205.

Root with short creeping suckers. *Stem* erect, much branched, from three to six inches high, slender, square, with sharp angles, often purple, smooth, or slightly hairy. *Leaves* numerous, nearly sessile, smooth, or slightly hairy, ovate lanceolate, with an obtuse point, heart-shaped at the base, and entire, or with one or two obtuse teeth on each side at the base, the upper leaves narrower, and rounded at the base and entire. *Inflorescence* axillary flowers, solitary, or in pairs, on short stalks. *Calyx* clothed with short simple hairs, enlarged when in seed.

Corolla small, its tube straight, swollen towards the base, and the throat dilated, pale pink, downy, upper lip arched, concave, three lobed, the middle one largest and notched, the lower obtusely three lobed and spreading. *Stamens* curved beneath the upper lip. *Seeds* small, rough, brown.

Habitat.—Moist heathy places, and the side of ditches, general; but less common than the preceding.

Perennial; flowering in July and August.

GENUS XVIII. PRUNELLA.—LINN. *Self-heal*.

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Calyx* two lipped, closed after flowering, the upper one flat, three toothed, the lower narrower, bifid. *Corolla* with the upper lip concave, nearly entire, the lower of three obtuse lobes.—Name from the German *Braune, quinsy*; called by some authors *Brunella*, and changed by Linnæus to the present.

1. *P. vulgaris*, Linn. (Fig. 958) *Self-heal*. Filaments terminating in a spinous tooth; calyx with the upper lip broad, truncated, the teeth small, mucronated, the lower of two lanceolate ciliated leaves, oblong, ovate, entire, toothed or waved, petiolated; flowers purple.

English Botany, t. 961.—English Flora, vol. iii. p. 115.—Hooker, British Flora, ed. 4. vol. i. p. 235.—Lindley, Synopsis, p. 206.

β. alba. Flowers and bractæas white.

Root of numerous short black fibres, and with somewhat creeping branches. *Stem* erect, about a foot high, square, smooth or downy on the opposite alternate sides, simple or branched at the base. *Leaves* distant, petiolated, ovate oblong, entire, slightly toothed or waved on the margin, more or less hairy, paler beneath. *Inflorescence* an oblong terminal crowded whorled spike, having at the base of the spike a pair of sessile leaves, and of each whorl a pair of broad obtuse or acute bractæas, reticulated with veins, and mostly tinged of a purple colour. *Calyx* nearly sessile, with a narrow veiny hairy tube, the upper lip flat, broad, truncated, the teeth very small, bristly, the lower lip of two deeply cleft lanceolate awl-shaped teeth, mostly ciliated. *Corolla* of a deep purplish blue, the tube cylindrical, dilated in the throat, upper lip oblong, concave, entire or notched, the lower three lobed, the middle lobe largest, broadest, and mostly crenated. *Stamens* curved beneath the upper lip, the filaments with a tooth below the roundish two valved anther. *Seeds* ovate, brown, contained in the closed dry reticulated calyx.

Habitat.—Moist places, barren pastures, &c., common. *β. alba*, rare; near Worksop, Nottinghamshire.

Perennial; flowering in July and August.

GENUS XIX. AJUGA.—LINN. *Bugle*.

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Calyx* nearly equal, five-cleft. *Corolla* with the upper lip very short, entire, or bifid, the lower of three lobes, much larger. *Stamens* close, ascending above the upper lip.—Name from *Abigo*; to drive away.

* *Bugula*. Tournef. *Flowers numerous in whorls*.

1. *A. reptans*, Linn. (Fig. 959.) *Common Bugle*. Stem solitary, with creeping runners; leaves broadly ovate, more or less crenated; flowers whorled.

English Botany, t. 489.—English Flora, vol. iii. p. 66.—Hooker, British Flora, ed. 4. vol. i. p. 229.—Lindley, Synopsis, p. 197.

Root of numerous long wiry whorled fibres. *Stem* erect, solitary, about eight inches high, square, with sharp and often hairy angles, mostly purplish, leafy, putting out numerous creeping runners from the base. *Leaves* opposite, the lower ones on petioles, of greater or less length, large, oblong, ovate, with a stout mid-rib, smooth, or slightly hairy, paler beneath, the upper ones sessile, much smaller, ovate, all either entire, or more or less unequally crenated or waved. *Inflorescence* a terminal leafy spike of numerous whorled flowers, crowded upwards, more distant below. *Calyx* with a short tube, and five nearly equal deeply cut lanceolate teeth, smooth or hairy. *Corolla* with a cylindrical tube, the upper lip very short, entire, or notched, apparently wanting, the lower a fine deep blue, often streaked with white, reflexed, three lobed, the lateral ones oblong, entire, the middle one broad, deeply notched. *Stamens* protruding, anthers ovate, two celled.

Habitat.—Moist pastures, woods and shady places; common.

Perennial; flowering in May and June.

This is a variable plant in size, and the greater or less intensity and richness of the colour of its flowers, which are sometimes white or flesh coloured; the floral leaves or bractea often become of a fine blue colour. It is smooth or hairy, and with or without creeping runners at the base. It is without smell or taste, but the roots are slightly astringent. It was once reputed for its vulnerary property, but is now entirely neglected.

2. *A. pyramidalis*, Linn. (Fig. 960.) *Pyramidal Bugle*. Stem solitary, without creeping runners; radical leaves oblong, obovate, crenated, the upper ones longer than the whorled flowers.

English Botany, t. 1274.—English Flora, vol. iii. p. 67.—Hooker, British Flora, ed. 4. vol. i. p. 229.—Lindley, Synopsis, p. 198.

Root of numerous long stout branched fibres. *Stem* erect, from four to six inches high, square, with sharp angles, hairy, often



960

Ajuga pyramidalis.



961

Ajuga genevensis.



962

Ajuga chamaepitys.



963

Teucrium scorodonia.



964

Teucrium scordium.



965

Teucrium chamaedrys.

purplish, leafy. *Leaves* numerous, oblong, obovate, unequally crenated, the radical ones with footstalks, large, spreading, paler beneath than above, and more or less hairy, the upper ones gradually becoming smaller and sessile. *Inflorescence* axillary whorls of numerous flowers, crowded towards the top into a leafy spike. *Calyx* with a short tube and narrow lanceolate teeth, longer than the tube, mostly very hairy. *Corolla* pale blue, striated with purple, the tube cylindrical, upper lip short, notched, the lower three lobed, the lateral lobes oblong, the middle one broad, notched. *Bracteas* or floral leaves longer than the flowers, and mostly tinged with purplish blue. *Stamens* protruded. *Anthers* ovate, two celled. "*Seeds* reticulated."

Habitat.—Highland pastures, rare; Ben Nevis, Tor Aichaltie, Ross-shire, Appin, Strath Erric, Inverness-shire, Isle of Lewis.—*Mr. R. B. Bowman*.

Perennial; flowering in June.

3. *A. gene'vensis*, Linn. (Fig. 961.) *Alpine Bugle*. Stem solitary, without creeping runners; leaves almost smooth, oblong, ovate, unequally toothed, the upper ones three lobed, or entire, shorter than the distant whorled flowers.

English Botany, t. 477.—English Flora, vol. iii. p. 67.—Hooker, British Flora, ed. 4. vol. i. p. 229.—Lindley, Synopsis, p. 197.—*A. alpina*, Linn. Mant.

Root of numerous stout branched fibres, without creeping runners. *Stem* erect, simple, obtusely angular, furrowed, downy, from four to six inches high. *Leaves* distant, oblong, ovate, paler beneath, with prominent mid-rib and lateral veins, scarcely downy, coarsely and unequally toothed, or crenated, the radical ones with a long winged footstalk, the upper sessile. *Inflorescence* axillary whorls of numerous flowers, distant below, mostly crowded above. *Calyx* with a short tube and lanceolate teeth, longer than the tube, and clothed with silky hairs. *Corolla* a fine purplish blue, striated with purple, the tube long, slender, cylindrical, pale, slightly downy, the upper lip short, the lower of three lobes, the lateral ones ovate, the middle one broad, flat, entire, crenated or notched. *Bracteas* or floral leaves shorter than the flowers, mostly tinged with purple, the lower ones ovate, with a lobe on each side, the upper entire. *Stamens* protruded. *Anthers* ovate, two celled.

Habitat.—Rare, on mountains and alpine districts; Carnarvonshire.—*Ray*. Castleton, Derbyshire, and the County of Durham.

Perennial; flowering in July.

This, though a very rare species in England, is by no means uncommon on the mountains in Switzerland.

** *Chamæpitys*. Tournef. *Flowers* solitary, axillary.

4. *A. Chamæpitys*, Smith. (Fig. 962.) *Ground Pine* or *Yellow Bugle*.

Stems numerous, spreading; leaves numerous, in three deep linear segments, hairy; flowers axillary, solitary, shorter than the leaves.

English Botany, t. 77.—English Flora, vol. iii. p. 68.—Hooker, British Flora, ed. 4. vol. i. p. 230.—Lindley, Synopsis, p. 198.

Root slender, long, tapering. The whole plant more or less clothed with soft silky hairs, and somewhat glutinous. *Stems* several, spreading, from two to four inches long, slender, obtusely angular, purplish. *Leaves* numerous, crowded, cut into three linear spreading segments, paler on the under side. *Inflorescence* solitary axillary flowers, shorter than the leaves. *Calyx* nearly sessile, the tube short, the teeth equal, lanceolate, longer than the tube, hairy. *Corolla* bright yellow, spotted with crimson, the tube short, swollen at the base, and dilated in the throat, the upper lip short, notched, the lower long, with two oblong linear lateral lobes, and the middle one oblong, heart-shaped. *Stamens* scarcely longer than the tube, the *anthers* roundish. *Seeds* kidney-shaped, beautifully reticulated with elevated lines, and having near the base on the inner side an oblong marginal pit.

Habitat.—Sandy and gravelly fields; not unfrequent in Kent and Surrey; Triplo w heath, Cambridgeshire; and Purfleet, Essex.

Annual; flowering in April and May.

A very different species both in appearance and habit from any of the preceding. The flowers are extremely beautiful, and the seeds are remarkably elegant. It is a more frequent plant on the Continent than with us, and we have found it in Germany in full flower in the month of October, and in Italy in May.

GENUS XX. TEUCRIUM.—LINN. *Germander*.

Nat. Ord. LABIATÆ. JUSS.

GEN. CHAR. *Calyx* tubular, two lipped, or five toothed. *Corolla* with the upper lip bi-partite, the lower of three lobes. *Stamens* much protruded between the lobes of the upper lip.—Named from *Tucer*, Prince of Troy, who, according to Pliny, was the first to use a plant so called medicinally.

* *Calyx* two lipped.

1. *T. Scorodonia*, Linn. (Fig. 963) *Wood Germander, or Sage*. Stem erect; leaves ovate, heart-shaped, petiolated, rugose, crenated; flowers in terminal and axillary racemes; upper lip of the calyx ovate, acute, entire.

English Botany, t. 1543.—English Flora, vol. iii. p. 69.—Hooker, British Flora, ed. 4. vol. i. p. 229.—Lindley, Synopsis, p. 198.

Root of numerous branched fibres and creeping suckers. *Stem* erect, obtusely angular, from one to two feet high, simple or branched,

and more or less thickly clothed with soft pubescence. *Leaves* numerous, opposite, petiolated, oblong lanceolate, or obtuse, heart-shaped at the base, rugose, paler beneath, and more or less clothed with soft pubescence, the margin unequally crenated. *Inflorescence* terminal and axillary, erect, many flowered, unilateral racemes. *Flowers* yellow, on short stalks. *Bracteas* small, ovate. *Calyx* tubular, the lower lip of four awl-shaped teeth, the upper large, ovate, acute, undivided. *Corolla* nearly smooth, the tube cylindrical, the upper lip divided into two distant lobes, the lower three lobed, the lateral ones oblong, the middle one ovate, concave. *Stamens* protruding, the *filaments* pink, somewhat downy. *Anthers* ovate, purple. *Seeds* roundish, pear-shaped, nuts brown, seldom more than one, perfected in the enlarged veiny calyx, which has then a few incurved hairs in the throat, by which the seeds are protected from insects, &c.

Habitat.—Woods and dry stony places, abundant, especially in a sandy country.

Perennial; flowering in July and August.

The whole plant is somewhat viscid to the touch, having a strong smell, not unlike hops, and with a very bitter taste. In Jersey it is said to be used as a substitute for hops in the brewing of beer, and answers the purpose, but it is not so highly esteemed.

**** Calyx of five equal teeth.**

2. *T. Scor'dium*, Linn. (Fig. 964.) *Water Germander*. Stem procumbent; leaves oblong, sessile, coarsely serrated, pubescent; whorls of four axillary sessile flowers; calyx woolly, of five equal lanceolate teeth.

English Botany, t. 828.—English Flora, vol. iii. p. 69.—Hooker, British Flora, ed. 4. vol. i. p. 229.—Lindley, Synopsis, p. 198.

Root of whorled fibres and creeping suckers. *Stem* procumbent, branched, and spreading, obtusely angular, downy, mostly purplish. *Leaves* numerous, sessile, oblong, downy, paler beneath, coarsely serrated. *Inflorescence* axillary whorls of about four sessile flowers, or nearly so. *Calyx* bell-shaped, downy, of five short angular teeth, nearly equal. *Corolla* pale pink, the tube about as long as the calyx, the upper lip short, of two distant acute lobes, the lower of three lobes, the middle one broad, ovate, striated, and spotted with purple, downy. *Stamens* protruding, anthers ovate, yellow. *Seeds* light brown, roundish ovate, wrinkled, filling the swollen calyx tube.

Habitat.—Low meadows and marshy grounds, rare. Cambridge-shire; near Highbridge, Oxfordshire; Castle Lyons, and near the bridge Portumna, County of Tipperary, Ireland.

Perennial; flowering in July and August.

The leaves have a disagreeable somewhat garlick smell and a bitter pungent taste. Formerly it was highly esteemed as a preservative

against pestilential disease, and as a remedy against all kinds of obstructions, &c., but it is now justly fallen into disuse.

3. *T. Chamædrys*, Linn. (Fig. 965.) *Wall Germander*. Stem ascending; leaves ovate, tapering into a footstalk, deeply serrated or cut; flowers racemose, in whorls of six flowers each.

English Botany, t. 680.—English Flora, vol. iii. p. 70.—Hooker, British Flora, ed. 4. vol. i. p. 229.—Lindley, Synopsis, p. 198.

Root of branched fibres, with creeping suckers. *Stem* ascending, almost round, hairy, mostly much branched. *Leaves* numerous, ovate, obtuse, tapering at the base into a footstalk, deeply serrated, and often cut, downy, paler beneath, with a prominent mid-rib and branched veins, the upper or floral leaves small, wedge-shaped. *Inflorescence* axillary whorls of about six flowers, in terminal and lateral racemes. *Calyx* campanulate, on short stalks, hairy, ribbed, the teeth nearly equal, lanceolate, scattered over with small globose glands, often purplish. *Corolla* pale purplish pink, downy, the tube about as long as the calyx, the upper lip of two linear downy remote teeth, the lower lip spreading, the lateral lobes ovate, acute, the middle one broad, roundish, sometimes notched or crenated. *Stamens* protruded, the *filaments* recurved. *Anthers* roundish, two celled. *Seeds* kidney-shaped, dark brown, rugose.

Habitat.—Borders of fields and old ruins or moist walls, but a doubtful native. Winchelsea Castle, Sussex; Gateshead, Durham; City Walls of Norwich, plentiful; near Forfar and Kelly-Angus; Methvin Wood, Perthshire, Scotland; near Cork, Ireland.—*Mr. Drummond*.

Perennial; flowering in July.

The whole plant has a very bitter somewhat aromatic taste, and was formerly held in high estimation as a most valuable medicine in the cure of rheumatism, gout, and intermittent fevers, and it is reported to have cured Charles V. of the gout, in the form of a vinous infusion; how far, however, the effect of the medicine may have contributed to the recovery of his Majesty, will be somewhat doubted by many persons, for the same report tells us that he took it for sixty successive days before he was cured. Time and perseverance certainly work wonders with some people; but we do not now-a-days find such patience exercised by persons labouring under paroxysms of gout, or a willingness to place faith in the efficacy of a medicine for so long a time. The dried and powdered leaves formed an ingredient in the celebrated Portland Powder. It was formerly much cultivated in gardens, and probably from thence has escaped and become a naturalized plant. It was known to the herbalists by the name of *Ground-oak* and *Germander*. It is a common plant in most parts of the Continent in dry sandy ground or amongst ruins.

ORDER II.

ANGIOSPER'MIA. (FRUIT A CAPSULE, CONTAINING ONE
OR MORE SEEDS.)

GENUS XXI. ORO'BANCHE.—LINN. *Broom-rape*.

Nat. Ord. OROBAN'CHÆÆ. RICH.

GEN. CHAR. *Calyx* four-cleft, or of two pieces, often bifid. *Corolla* ringent, four or five-cleft, fleshy and glandular in the lower part. *Stigma* capitate. *Capsule* one celled, two valved, many seeded, *placentas* lateral, opposite.—Name from *οροβος*, *pulse* or *vetches*; and *αγγων*, to *strangle*; in allusion to the habit of mostly attaching itself to the roots of leguminous plants, and thus injuring their growth.

* *Calyx* of two pieces, *bractæas* of one.

1. *O. ma'jor*, Linn. (Fig. 966.) *Greater Broom-rape*. Stem simple, angular; sepals many ribbed, rough, bifid, or entire; corolla tubular, inflated upwards, hairy, upper lip concave, entire or notched, the lower three lobed, the middle one largest, ovate, acute; stamens inserted into the base of the corolla, smooth; anthers yellow; style with glandular pubescence; stigma two lobed, yellow.

English Botany, t. 421.—English Flora, vol. iii. p. 147.—Hooker, British Flora, ed. 4. vol. i. p. 241.—Lindley, Synopsis, p. 193.—*O. Rapum*, Thuill.

Roots simple or branched fibres, from the fleshy tuberous base of the stem. *Stem* simple, erect, one to nearly two feet high, hollow, unequally angular and striated, of a dusky yellow colour, scattered over with sessile lanceolate scales, smaller, and more abundant at the base, more or less clothed with short glandular pubescence, which gives the plant an unctuous feel. *Inflorescence* a terminal spike of numerous flowers, more or less crowded. *Bractæas* lanceolate, the upper ones with a long narrow point, longer than the corolla. *Calyx* of two pieces, mostly cleft half way down into lanceolate points, numerous ribbed, and like the bractea rough with pubescence. *Corolla* tubular, ribbed and hairy on the back, the throat somewhat inflated, the upper lip concave, entire, crenated or notched, the lower three lobed, the lateral ones ovate, the middle one largest, roundish ovate, acute. *Stamens* inserted into the base of the corolla, the *filaments* dilated and smooth at the base, scattered with glandular hairs above. *Anthers* yellow, becoming white. *Style* slender and downy, with glandular hairs. *Stigma* of two yellow separate globules. *Capsule* ovate,

crowned by the persistent style. *Seeds* very numerous, small, dark brown, attached to the lateral *placentas*.

Habitat.—On the roots of Broom, Furze, and other leguminous plants; frequent.

Perennial; flowering in June and July.

Broom-rape is so called by our old herbalists from the belief that by attaching itself to the roots of Broom it robbed it of its nutriment, a name significant enough; but the *O. major* not only grows upon the Broom, but is found equally common on other of the leguminous tribe in Flanders. We are told it is as common on the roots of clover, which it so injures as to deter the farmers from cultivating it as a fodder. Its parasitical growth and destructive habit to other plants was well known to the ancients, and they called it the *Wolf*, because they said it destroyed all plants that grew near it; and Matthiola says, in some places it was called *The Lion's Tail*, from its peculiar shape.

2. *O. caryophylla'cea*, Sm. (Fig. 967.) *Clove-scented Broom-rape*. Stem simple, angular; sepals many ribbed, united in front half as long as the corolla; tube of the corolla inflated, especially above, the limb spreading, the upper lip waved, crenated and notched, the lower of three nearly equal crenated lobes, obtuse; stamens inserted above the base of the corolla; the filaments and style with glandulose pubescence; stigma two lobed, dark purple.

English Botany, t. 2639.—Hooker, British Flora, ed. 4. vol. i. p. 241.—Lindley, Synopsis, Suppl. p. 328.—*O. Galii*. Duby. Bot. Gall. vol. i. p. 349.

Root fibrous. *Stem* erect, from one to two feet high or more, simple, angularly striated and furrowed, of a pale dirty yellow, tinged with purple, and soon becoming a dark purplish brown, swollen into a fleshy tuberos base, clothed as is the whole plant with short soft glandular pubescence, and bearing a few taper-pointed lanceolate *scales*, many ribbed, more numerous and acute towards the base, soon becoming withered, and of a dark brown colour. *Inflorescence* a terminal spike of numerous flowers, distant below, crowded above. *Bractees* lanceolate, taper-pointed, mostly woolly on the outside. *Calyx* sepals mostly united in front, and cleft into two or four awl-shaped lobes, four or many ribbed, downy. *Corolla* bell-shaped, pale dirty purple, downy, the tube striated with dark ribs, the *limb* spreading, upper lip somewhat concave, crisped on the margin, and mostly notched, the lower lip of three nearly equal ovate acute spreading lobes, unequally crenated on the margins, all striated with dark purple veins. *Stamens* inserted above the base of the corolla. *Filaments* awl-shaped, clothed with glandular pubescence, especially on the inner side at the base. *Anthers* of two oblong cells, pointed at the base, downy on the margin. *Style* pubescent above. *Stigma* of two globose lobes, dark purple, the



966

Orobanche major.



967

Orobanche caryophyllacea.



968

Orobanche elatior.



969

Orobanche minor.



970

Orobanche rubra.



971

Orobanche caerulea.

margin downy. *Capsule* ovate, crowned by the persistent style. *Seeds* very numerous, small, palish brown, attached to the lateral *placentas*.

Habitat.—On the roots of *Galium Mollugo*, *Rubus fruticosus*, &c., in South Kent.—*Rev. G. E. Smith*.

Perennial; flowering in July.

This species, it is probable, has been confounded with *O. major*, from which, however, it is readily distinguished by the bell-shaped corolla, the more spreading crisped limb, and different colour. The stamens are inserted higher in the tube, and are hairy at the base. The whole plant is of a more purple somewhat glossy colour, and not a dull tingy brown, and the purple hairy margined stigmas sufficiently distinguish it from both the preceding and following species.

3. *O. elatior*, Sutton. (Fig. 968.) *Tall Broom-rape*. Stem simple, angular; sepals many ribbed, deeply divided, nearly as long as the corolla; tube of the corolla cylindrical, dilated above, the limb somewhat spreading, the upper lip with the margin recurved, two lobed and crenated, the lower of three nearly equal ovate acute crenated lobes, spreading; stamens inserted above the base of the corolla; the filaments slightly hairy at the base; style smooth; stigma two lobed, pale purple.

English Botany, t. 568.—English Flora, vol. i. p. 148.—Hooker, British Flora, ed. 4. vol. i. p. 241.—Lindley, Synopsis, p. 194.

Root fibrous. *Stem* erect, simple, from one to two feet high or more, somewhat angularly striated, of a pale dirty yellow, tinged with purple, becoming of a purplish brown, swollen into a fleshy tuberous base, and more or less clothed with short glandular pubescence, and bearing a few lanceolate taper pointed scales upon the stem above, more numerous and ovate acute below, soon becoming withered, and of a dark brown colour. *Inflorescence* a long terminal spike of very numerous flowers, scattered below, crowded above. *Bracteas* lanceolate, taper pointed, hairy externally. *Calyx* sepals often united in front, cleft into two awl-shaped segments, about as long as the tube of the corolla, paler than the bractea, from three to five ribbed, slightly downy. *Corolla* with a cylindrical tube, somewhat inflated above, and curved downwards, smooth, or slightly downy, striated with dark veins, the limb somewhat spreading, the upper lip somewhat concave, the margin two lobed, crenated, and slightly recurved, the lower lip of three spreading nearly equal ovate acute lobes, crenated on the margin, and crisped, all marked with dark veins. *Stamens* inserted above the base of the tube, the filaments awl-shaped, smooth above, slightly downy at the base on the inner side. *Anthers* smooth, of two ovate pointed cells, yellow. *Style* quite smooth. *Stigma* of two globose lobes, quite smooth, pale purple. *Capsule* ovate, crowned with the persistent style. *Seeds* very numerous, small, dark brown.

Habitat.—On the roots of *Centaurea*, *Scabiosa*, &c.; not common. Perennial; flowering in July and August.

This is distinguished from *O. major* by its purplish brown stem, its numerous lax flowered spike, the elongated sepals, the narrower more tuberos corolla, the limb more crenated, the stamens with the downy base and smaller anthers, the style quite smooth, and the stigmas purplish.

4. *O. mi'nor*, *Smith*. (Fig. 969.) *Lesser Broom-rape*. Stem simple, striated; sepals many ribbed, ovate, with a slender awl-shaped point, entire or bifid, as long as the tube of the corolla, which is tubular, curved, the limb waved, and obtusely toothed, the lower lip of roundish unequal notched lobes; stamens inserted below the middle of the tube; the filaments fringed at the base; style smooth; stigma two lobed, purplish.

English Botany, t. 422.—English Flora, vol. iii. p. 148.—Hooker, British Flora, ed. 4. vol. i. p. 241.—Lindley, Synopsis, p. 194.

Root fibrous. *Stem* erect, about a foot high, slender, somewhat angularly striated, of a yellowish purple hue, becoming brown, downy, as is the whole plant, with soft glandular hairs, and bearing a few distant lanceolate scales, more numerous towards the fleshy somewhat swollen base. *Inflorescence* a lax terminal spike of a few rarely crowded flowers. *Bractees* lanceolate, taper pointed, dark brown, woolly externally. *Calyx* of two sepals, rarely united at the base, ovate, with an awl-shaped point, as long as the tube of the corolla, numerous ribbed, entire, or cleft into two mostly unequal segments, pale, and clothed with glandular pubescence. *Corolla* with a nearly cylindrical tube, curved towards the top, striated with dark veins, and slightly hairy, the upper lip somewhat concave, unequally and obtusely toothed, sometimes notched, the lower of three unequal roundish irregularly and obtusely toothed lobes, veiny. *Stamens* with awl-shaped filaments inserted below the middle of the tube, and somewhat fringed at the base with short pubescence. *Anthers* ovate, purplish, of two pointed cells. *Style* smooth, the *stigmas* of two lobes, purplish. *Capsules* oblong. *Seeds* very numerous, very small, dark shining brown, almost black, attached to the lateral placentas.

Habitat.—Clover fields in Norfolk, Kent, and Surrey; frequent in Ireland, "near the roots of ivy."

Perennial; flowering in July and August.

5. *O. ru'bra*, *Smith*. (Fig. 970.) *Red Broom-rape*. Stem simple, angular; sepals many ribbed, lanceolate, awl-shaped, entire or bifid, as long as the tube of the corolla, which is tubular, curved, and inflated upwards, downy, with glandular pubescence, the limb spreading, the margin unequally toothed and crisped, the upper lip incurved, two lobed, the lower three lobed, the middle one the largest, spreading; stamens inserted near the base of the corolla, somewhat downy, as well as the style; stigmas reddish purple.

English Botany, t. 1786. (bad.)—English Flora, vol. iii. p. 148.—Hooker, British Flora, ed. 4. vol. i. p. 242.—Lindley, Synopsis, p. 194.

Root of numerous spreading fibres. *Stem* erect, simple, about a foot high, angularly striated, clothed with glandular pubescence, very viscid, yellow, tinged with pinkish purple, becoming purplish brown, scattered over with a few lanceolate scales, more numerous, smaller, and crowded on the fleshy swollen base. *Bracteas* lanceolate, dark and rough externally. *Calyx* of two pieces, lanceolate, taper pointed, as long or longer than the tube of the corolla, many ribbed, entire, or with a narrow tooth, or bifid, downy. *Inflorescence* a terminal lax spike, mostly of few sweet scented flowers. *Corolla* tubular, inflated upwards in a somewhat bell-shaped manner, and curved, veiny, scattered over with pubescence, the upper lip woolly, the limb somewhat spreading, the margin fringed with pubescence, unequally toothed and crisped, the upper lip concave, two lobed, downy within, the lower of three unequal lobes, the middle one largest, roundish ovate. *Stamens* with awl-shaped filaments, inserted into the base of the corolla, and as well as the style scattered over with more or less numerous glandular hairs. *Anthers* ovate, of two pointed lobes, somewhat downy, reddish purple colour, as well as the *stigma*. *Capsules* oblong, many seeded.

Habitat.—Frequent upon the basaltic and trap rocks in the Hebrides and adjacent shores, Scotland; Cave hills, near Belfast, and Magilligan, county of Derry, Ireland.

Perennial; flowering in July.

This species does not appear to have been found growing upon the roots of any plants in England; but on the Continent, where it is much more common, it is frequently found upon those of *Thymus serpyllum*. The flowers are strongly scented, and the whole plant is very viscid.

** *Calyx* of one piece, *bracteas* three.

6. *O. cæru'lea*, Vill. (Fig. 971.) *Purple Broom-rape*. *Stem* simple, angular; *bracteas* three, unequal; *calyx* of one piece, with five lanceolate teeth; *corolla* tubular, curved, the limb spreading, the upper lip lobed and notched, the lower in three nearly equal oblong acute lobes; *stamens* inserted near the base of the corolla, smooth; *style* downy; *stigmas* yellowish blue.

English Botany, t. 423.—English Flora, vol. iii. p. 149.—Hooker, British Flora, ed. 4. vol. i. p. 242.—Lindley, Synopsis, p. 194.—*O. purpurea*, Jacq.

Root of stout spreading fibres. *Stem* erect, slender, simple, angular, about a foot high, of a purplish grey colour, and clothed with short fine glandular pubescence, scattered over with a few lanceolate scales, of a brownish colour, more numerous on the somewhat swollen fleshy base. *Inflorescence* a terminal lax spike of a few flowers. *Bracteas* three lanceolate pieces, the outer one largest, brown, the two inner

smaller, paler. *Calyx* of one piece, unequally cleft into four or five lanceolate acute teeth, clothed with short glandular pubescence. *Corolla* with a rather long nearly cylindrical tube, curved towards the top, ribbed and downy, the upper lip ascending unequally, three or four lobed and toothed, the lower of three nearly equal oblong acute spreading lobes, veiny, with an elevated white downy palate, the colour of the corolla is a pale violet, the veins purple. *Stamens* inserted near the base of the corolla, the *filaments* awl-shaped, smooth, the *anthers* of two pointed cells, yellow, smooth, or slightly downy at the base. *Style* slender, minutely downy. *Stigmas* obtuse, notched, yellowish blue.

Habitat.—Grassy places near the sea, growing on the roots of *Achillea millefolium*, in Hampshire and Norfolk; rare.

Perennial; flowering in July.

This species is readily distinguished from all other of our species, but is nearly allied to *O. arenaria*, Borkhausen, found in various parts of the Continent growing on the roots of *Artemisia campestris*.

7. *O. ramo'sa*, Linn. (Fig. 972.) *Branched Broom-rape*. Stem branched; bracteas three, unequal; calyx of one piece, with four lanceolate teeth; corolla with a straight tube, contracted in the middle, the limb spreading, upper lip two lobed, the lower of three unequal ones; stamens inserted about the middle of the tube of the corolla; the filaments downy at the dilated base; anthers roundish, yellow, of two pointed lobes; style slender, smooth; stigmas yellowish white.

English Botany, t. 184.—English Flora, vol. iii. p. 150.—Hooker, British Flora, ed. 4. vol. i. p. 242.—Lindley, Synopsis, p. 194.

Root fibrous. *Stems* erect, from six to twelve inches high, waved, slender, branched, roundish, or angularly compressed, clothed with close short viscid pubescence, brownish yellow, scattered over with a very few lanceolate brownish scales, sometimes swollen at the base, and bearing fleshy protuberances, apparently caused by insects. *Inflorescence* terminal lax flowered spikes, the lower flowers frequently after flowering becoming elevated on a short stalk, and bearing the two smaller bracteas at the base of the calyx, the larger outer one remaining. *Calyx* of one piece, with four lanceolate taper pointed teeth, pale yellow, downy and ribbed. *Corolla* with a nearly straight tube, contracted in the middle, yellow at the base, ribbed, and more or less clothed with glandular pubescence, the limb spreading, palish purple, the upper lip two lobed, ascending, the lower of three lobes, the middle one largest, all even on the margin, the palate yellow and downy. *Stamens* attached a little above the middle of the tube, the *filaments* awl-shaped, with an angular downy base. *Anthers* roundish, yellow, smooth, two lobed, pointed at the base. *Style* slender, smooth, or slightly downy at the top. *Stigmas* obtuse, cloven, yellowish white. *Capsule* ovate. *Seeds* pale brown, very numerous, wrinkled.



972

Orobanche ramosa.



973

Lathraea squamaria.



974

Pedicularis palustris.



975

Pedicularis sylvatica.



976

Rhinanthus crista-galli.



977

Rhinanthus major.



Habitat.—Moist rich lands, growing on the roots of hemp, chiefly in Norfolk and Suffolk.

Annual; flowering in August and September.

This is readily distinguished by its branched waved stem and its pale purplish corolla. The seeds are minute, but extremely beautiful when examined by a magnifying power. Neither this nor any other of our species are now applied to any use, nor are they thought to possess any particular medicinal properties, though formerly they were used as astringents internally, and applied to ulcers; in Virginia the powdered stem of *O. Virginiana* is frequently used for inveterate ulcers and open cancers, with considerable benefit; and the famous "Martin's Cancer Powder," which is highly esteemed in North America, is said to be the powder of this plant and white arsenic. Formerly it was believed that *Orobanches* partook of the qualities of the plants on which they grew; and by others it was supposed that they imparted a deleterious property to the plant to which they attached themselves: but both opinions appear to have been given without sufficient proof as to the truth of either one or the other. It is, nevertheless, extremely curious that these plants should apply the sap of other plants so different to themselves to their own purposes, and on account of this power we find that the *Orobanches* are not furnished with leaves, as they are not necessary to elaborate the sap as in the generality of plants, but bear scales or abortive leaves. The seeds remain a considerable time in the ground, until they meet with the peculiar tribe of plants on which they can attach themselves; hence the necessity of the abundant quantity of seeds which each plant produces—we have counted 1,100 seeds in a capsule of *O. ramosa*. On the same plant (one of ordinary size) there were 66 capsules, so that this plant bore the enormous number of 72,600 seeds! each of which is capable of producing a plant, so that the chances of not meeting with the plant of its choice on which to establish itself, is, in a measure, obviated by the number of its seeds, and the chances of their *all* being destroyed by various causes until it does so are much greater. It is one of the many examples of the adaptation of the means used by the all-wise Creator for the accomplishment of His purpose in the economy and propagation of the plant, to maintain the link unbroken in the chain of creation.

GENUS XXII. LATHRÆA.—LINN. *Toothwort*.

Nat. Ord. OROBAN'CHÆÆ. JUSS.

GEN. CHAR. *Calyx* campanulate. *Corolla* tubular, two lipped. *Germen* with a depressed gland at the base. *Stigma* notched. *Capsule* one celled, two valved, many seeded, *placentas* spongy in

the middle of the valves.—Name from λαθῆμιος, *concealed*, or *secret*; so called from the plant growing hid or secreted in shady close places amongst leaves and mould.

1. *L. squama'ria*, Linn. (Fig- 973.) *Greater Toothwort*. Stem erect, simple; flowers pendulous, in one sided racemes; lower lip of the corolla three lobed.

English Botany, t. 50.—English Flora, vol. iii. p. 128.—Hooker, British Flora, ed. 4. vol. i. p. 237.—Lindley, Synopsis, p. 194.

Apparently parasitical upon the roots of trees. The *stem* mostly horizontal at the base, branched, curved upwards, and becoming erect, smooth, simple, a sickly looking yellow, tinged with purple, the underground stems and branches crowded with imbricated scales, roundish ovate, entire, thick, and fleshy, of a yellowish colour, more oblong, of a thinner texture, and remotely scattered upon the flowering stems. *Inflorescence* an erect terminal one sided raceme, of numerous flowers, sessile in the axis of the floral scales or *bracteas*, becoming elevated on a short footstalk. *Calyx* bell-shaped, cut into four nearly equal oblong segments, more or less downy, as well as the upper part of the stem. *Corolla* with a pale cylindrical tube, about as long as the calyx, the limb of a pale dull purple, the upper lip horizontal, deeply cloven into two ovate acute lobes, the lower in three shallow obtuse ones, spreading. *Stamens* curved beneath the upper lip of the corolla, the *filaments* awl-shaped, smooth, the *anthers* yellow, ovate, of two cells, pointed at the base, and more or less thickly clothed with pubescence. *Germen* roundish, ovate, compressed, smooth, with a notched fleshy yellow gland at the base in front. *Style* slender, smooth, as long as the stamens, becoming elongated, and protruding beyond the corolla. *Stigma* roundish, obtuse, velvety. *Capsules* large, ovate, thin, enveloped in the persistent calyx, many seeded.

Habitat.—Shady woods and groves, growing apparently parasitic on the roots of hazles, elm, and other trees in various parts of England, Scotland, and Ireland, but not common.

Perennial; flowering in April and May.

Toothwort is so called from the scales upon the stem resembling the front teeth. It is an extremely curious and interesting plant. Its mode of growth and remarkable structure have been admirably described and illustrated in the *Linn. Trans.* vol. 16, p. 2.

GENUS XXIII. PEDICULA'RIS.—LINN. *Louse-wort*.

Nat. Ord. SCROPHULARIA'CEÆ. LIND.

GEN. CHAR. *Calyx* tubular or inflated, five-cleft, or unequally lobed or jagged, and leafy. *Corolla* with the upper lip laterally compressed, and arched, the lower plane, three lobed. *Capsule*

oblique, compressed, two celled. *Seeds* angular, rough, and reticulated.—Name from *Pediculus*, a louse; so named from the plant's supposed property of producing lousiness in sheep that feed upon them.

1. *P. palustris*, Linn. (Fig. 974.) *Marsh Louse-wort, or tall Red-Rattle*. Stem and branches erect; upper lip of the corolla with an awl-shaped tooth on each side near the apex; calyx two lobed, broadly ovate, ribbed and hairy, the margin toothed and crisped; leaves pinnate, the lobes sub-pinnatifid and crisped.

English Botany, t. 399.—English Flora, vol. iii. p. 129.—Hooker, British Flora, ed. 4. vol. i. p. 237.—Lindley, Synopsis, p. 190.

Root tapering, branched, and fibrous. *Stem* erect, from twelve to eighteen inches high, somewhat angular and downy, mostly with numerous erect branches from the base upwards, opposite and alternate. *Leaves* numerous, from one to two inches long, pinnated, with opposite and alternate sub-pinnatifid lobes, more or less toothed and crisped on the margin, dark green, smooth, or somewhat downy, the common stalk ciliated at the base. *Inflorescence* solitary axillary flowers in the axis of the upper leaves. *Calyx* ovate, tubular, two lobed, numerously ribbed, downy, of a pinkish colour, the lobes ovate and acute, unequally toothed and crisped upon the margin. *Corolla* with a somewhat inflated tube, longer than the calyx, two lipped, the upper one laterally compressed, curved, concave, truncated, with a small awl-shaped tooth on each side near the apex, and frequently another about the middle of the lateral margins, a darker pink than the lower lip, which is spreading, of three unequal roundish lobes, of an elegant pink colour, fringed on the margins. *Stamens* with smooth thread-shaped filaments inserted into the base of the corolla, and curved beneath the under lip. *Anthers* ovate, two lobed, pointed at the base, yellow. *Styles* slender, thread-shaped, downy, as long as the stamens. *Stigmas* small, oblique. *Capsules* oblong, or ovate, obliquely pointed, compressed, two celled, two valved. *Seeds* about six in each cell.

Habitat.—Wet meadows and marshy places; not uncommon.

Perennial; flowering in June and July.

The whole plant is acrid and unpleasant to the taste; it is refused by cattle, though goats eat it. The common idea that this plant produces vermin in sheep is as incorrectly founded as the belief that the *Droseras* cause the rot in the same animal; in fact, the origin of this disease must be sought for in a more general cause, viz., the bad pasturage and wet soil in which these plants delight to grow, by which diseases are much more likely to be produced, than from the eating of any single plant.

2. *P. sylvatica*, Linn. (Fig. 975.) *Pasture Louse-wort, or Dwarf Red-Rattle*. Stem erect, its branches spreading; upper lip of the corolla with an angular awl-shaped tooth on each side near the apex;

calyx oblong, angular, smooth, with five unequal crenated lobes, often leafy.

English Botany, t. 400.—English Flora, vol. iii. p. 130.—Hooker, British Flora, ed. 4. vol. i. p. 237.—Lindley, Synopsis, p. 190.

Root tapering, stout, branched. *Stem* three to five inches high, erect, angular, nearly smooth, as is the rest of the plant, much branched and leafy at the base, the branches slender, mostly longer than the stem, and spreading around on the surface of the grass or ground. *Leaves* numerous, the radical ones surrounding the base, ovate oblong, entire, cut, or pinnatifid, sub-membranous, the upper ones pinnated, with ovate or oblong mostly cut and serrated lobes, on a slender round common footstalk, naked at the base. *Inflorescence* axillary solitary flowers in the axis of the leaves, often from almost the base of the stem and on the branches towards the extremity. *Flowers* a delicate pink, paler than the last species. *Calyx* sessile, becoming elevated on a short stalk, oblong, smooth, with prominent ribs, the limb unequally divided into five teeth, unequally crenated, mostly leafy, downy on the margin. *Corolla* with a narrow tube, inflated upwards, as long again as the calyx, two lipped, the upper lip compressed, elongated, somewhat curved, concave, obtusely rounded at the extremity, and with an angular awl-shaped tooth near the extremity on each side, the lower lip of three roundish spreading nearly equal lobes. *Stamens* with smooth slender thread-shaped *filaments* inserted into the base of the corolla, curved beneath the upper lip, the *anthers* large, ovate, yellow, two celled, pointed at the base. *Style* long, slender, thread-shaped, protruded beyond the upper lip. *Capsule* ovate, obliquely pointed.

Habitat.—Moist pastures and heathy places; common.

Perennial; flowering in June and July.

The flowers of this species are larger than the last, and are sometimes found of a salver-shape, with a regular six-cleft limb and six stamens, four long, and two short. A white flowered variety is also sometimes met with in the Western Highlands and other parts of Scotland. The calyx segments are often remarkably expanded into pinnatifid leafy lobes, of the same structure and appearance as the leaves.

GENUS XXIV. RHINANTHUS.—LINN. *Yellow-Rattle*.

Nat. Ord. SCROPHULARIACEÆ. LIND.

GEN. CHAR. *Calyx* inflated, four toothed. *Corolla* with the upper lip laterally compressed, the lower plane, three lobed. *Capsule* obtuse, compressed, two celled. *Seeds* flat, orbicular, margined.—Name from *ῥιν*, a *nose*; and *ανθος*, a *flower*; in allusion to the remarkably beaked upper lip of the corolla.

1. *R. Crista-Galli*, Linn. (Fig. 976.) *Common Yellow-Rattle*. Stem erect, slightly branched; bracteas coloured; leaves oblong, lanceolate, serrated; corolla tube straight, the lateral teeth of the upper lip short, ovate, acute; style included; seed with a broad thin membranous border.

English Botany, t. 657.—English Flora, vol. iii. p. 120.—Hooker, British Flora, ed. 4. vol. i. p. 236.—Lindley, Synopsis, p. 190.—*R. minor*, Ehrh.

Root of branched spreading fibres. *Stem* erect, obtusely angular, simple or branched, smooth, or slightly hairy beneath the joints, pale green, often spotted or streaked with purple, about a foot high. *Leaves* opposite, sessile, oblong lanceolate or lanceolate, with a long tapering point, the margin deeply cut or sharply serrated, rough, with short hairs above, paler beneath, and beautifully netted with veins, the intermediate spaces closely set with short white rough hairs, the mid-rib stout, and the lateral veins prominent, terminating in the angle of the serratures. *Inflorescence* axillary sessile, flowers crowded more or less closely into a terminal leafy spike, the bracteas or floral leaves similar to the stem leaves, the upper ones broader, short, and the serratures more tapering. *Calyx* ovate, compressed, somewhat inflated and bladdery, ribbed and reticulated with veins, smooth, except on the marginal ribs, the teeth four, nearly equal, lanceolate, acute. *Corolla* yellow, the tube pale, cylindrical, straight, about as long as the calyx, the upper lip compressed, concave, rounded, obtuse, having on each side near the apex an angular ovate tooth, sometimes ovate, and white, or of a purple colour, more or less thickly clothed with short pubescence, the lower lip of three nearly equal roundish spreading lobes. *Stamens* inserted above the middle of the tube, the filaments slender, curved beneath the upper lip, anthers of two spreading pointed very hairy lobes. *Style* slender, roughish. *Stigmas* somewhat downy, obtuse. *Capsules* enveloped in the persistent calyx, roundish ovate, compressed, smooth, with a deep furrow in the middle, terminating in a short point, the base of the style dry and membranous. *Seeds* numerous, roundish, kidney-shaped, with a broad thin brown membranous margin.

Habitat.—Meadows and pastures abundant, especially in a sandy soil.

Annual; flowering in June.

The seeds when they are ripe become loose, and rattle in the hardened membranous capsule; hence it has derived its common name of *Yellow Rattle*.

2. *R. major*, Ehrh. (Fig. 977.) *large bushy Yellow-Rattle*. Stem erect, much branched; bracteas pale, nearly colourless; leaves oblong lanceolate, serrated; corolla tube curved, the lateral teeth of the upper lip ovate; style slightly protruding; seed with a narrow membranous border.

English Botany, t. 2737.—English Flora, vol. iii. p. 121.—Hooker, British Flora, ed. 4. vol. i. p. 236.—Lindley, Synopsis, p. 190.—*R. Crista-Galli*, β . Linn.

Root of branched spreading fibres. *Stem* erect, angular, much branched from the base upwards, bushy, smooth or hairy about the joints, pale green, mostly spotted or streaked with purple, from one to two feet high. *Leaves* opposite, numerous, sessile, oblong lanceolate or lanceolate, with a long tapering point, the serratures coarse, deep, acute, the margin obtuse, somewhat recurved, rough, paler beneath and reticulated, as in the last species. *Inflorescence* solitary axillary flowers, more or less closely crowded on the top of the stems into a spike-like form. *Bracteas* with a broad heart-shaped almost colourless base and tapering green point. *Calyx* large, ovate, compressed, somewhat inflated, bladdery, ribbed and reticulated with veins, smooth or hairy, the teeth four, nearly equal, ovate, acute. *Corolla* yellow, the tube pale, about as long as the calyx, curved about the middle, ascending, the upper lip laterally compressed, concave, rounded, obtuse, having on each side an ovate purple tooth, mostly hairy on the back, the lower lip much shorter, spreading, of three shallow lobes. *Stamens* inserted into about the middle of the tube. *Filaments* slender, curved beneath the upper lip. *Anthers* of two pointed very hairy purple lobes. *Style* slender, slightly protruded beyond the corolla. *Capsule* large, enveloped in the enlarged persistent calyx, roundish ovate, compressed, with a deep furrow in the middle, terminating in a point, the base of the style, thin, smooth, dry, and membranous. *Seeds* numerous, roundish, kidney-shaped, with a narrow pale membranous margin.

Habitat.—Corn fields in the North of England.

Annual; flowering in July.

This is distinguished from the last species by its larger, stouter, much more branched and bushy habit, the pale almost colourless bracteas, the curved tube, and much larger purple lateral teeth of the corolla, and the much narrower border to the seeds. It is a common plant in Italy, and other parts of the Continent, especially in corn fields and waste places.

GENUS XXV. MELAM'PYRUM.—LINN. *Cow-Wheat*.

Nat. Ord. SCROPHULARIA'CEÆ. LIND.

GEN. CHAR. *Calyx* tubular, four toothed. *Corolla* with the upper lip laterally compressed, and the margin rolled back, the lower one trifid. *Capsule* oblong, oblique, two celled, single seeded, opening on one side. *Seeds* gibbous at the base.—Name from $\mu\epsilon\lambda\alpha\varsigma$, *black*; and $\pi\upsilon\rho\omicron\varsigma$, *wheat*; the seeds resemble grains of



978

Melampyrum cristatum.



979

Melampyrum arvense.



980

Melampyrum pratense.



981

Melampyrum sylvaticum.



982

Bartsia alpina.



983

Bartsia viscosa.

wheat, and they are said, when mixed with flour, to give a peculiar black colour to the bread.

1. *M. cristatum*, Linn. (Fig. 978.) *Crested Cow-Wheat*. Spike quadrangular, densely imbricated; bractees heart-shaped, ciliated with fine teeth, the lower ones terminating in narrow lanceolate entire points; calyx with lanceolate teeth.

English Botany, t. 42.—English Flora, vol. iii. p. 124.—Hooker, British Flora, ed. 4. vol. i. p. 236.—Lindley, Synopsis, p. 195.

Root of spreading branched fibres. *Stem* erect, obtusely angular, branched, leafy, rough, with short close hairs, about a foot high. *Leaves* opposite, dark green, smooth above, paler beneath and rough, with short hairs, the mid-rib stout and veins prominent, linear lanceolate, nearly sessile. *Inflorescence* a terminal four sided spike of numerous closely imbricated flowers, from one to two inches long or more. *Bractees* heart-shaped, yellowish, or rose coloured, the margin unequally cut into fine teeth, smooth above, downy beneath, and on the margin of the teeth, the lower bractees mostly with an elongated linear lanceolate point, leafy, the margin even. *Calyx* tubular, of four unequal lanceolate teeth, hairy. *Corolla* about as long as the bractees, the tube swollen upwards, yellow, the upper lip laterally compressed, concave, notched, the margin reflexed, purplish within, the lower lip of three nearly equal roundish obtuse segments, reflexed, the palate swollen on each side, yellow, and downy. *Stamens* inserted into the mouth of the tube. *Filaments* thread-shaped, curved below the lower lip. *Anthers* of two oblong pointed lobes, purplish. *Style* simple, thread-shaped, as long as the stamens. *Capsule* half moon shaped, thin, membranous, pale green, netted with darker veins, two celled.

Habitat.—Woods and thickets, sometimes in corn fields, chiefly in Norfolk, Cambridgeshire, Bedfordshire, and Huntingdonshire.

Annual; flowering in July.

An extremely beautiful and curious plant, which, as well as the following species, is deserving a place in the flower garden.

2. *M. arvense*, Linn. (Fig. 979.) *Purple Cow-Wheat*. Spike oblong, lax; bractees ovate lanceolate, pinnatifid, with awl-shaped segments; calyx with long bristle-shaped teeth, from an ovate base; lips of the corolla closed.

English Botany, t. 53.—English Flora, vol. iii. p. 125.—Hooker, British Flora, ed. 4. vol. i. p. 237.—Lindley, Synopsis, p. 195.

Root of branched fibres. *Stem* erect, acutely angular, roughish, purplish, with erect branches, from one to two feet high. *Leaves* opposite, lanceolate, the margins rough, and more or less downy on both sides, the upper ones divided at the base in a pinnatifid manner with awl-shaped segments. *Inflorescence* an oblong many flowered lax spike, three or four inches long. *Bractees* sessile, ovate, with a

long linear lanceolate entire point, the base cut into numerous awl-shaped spreading segments, in a pinnatifid manner, the upper ones a delicate purplish pink, the lower yellowish green at the base, each bearing a sessile flower in its axis; the calyx tubular, more or less rough, with short bristles, the limb with long linear awl-shaped purple segments from an ovate base. Corolla with a long narrow cylindrical tube, as long as the calyx segments, a bright yellow, the lips closed, of a purplish rose colour, and as well as the tube clothed with short close pubescence, the upper lip concave, notched, the lower as long as the upper, of three shallow lobes. Capsule ovate, enveloped in the swollen persistent calyx, two celled, mostly single seeded. Seed oblong, smooth, black.

Habitat.—Corn fields and dry gravelly banks, principally in Norfolk and about Norwich; Isle of Wight.—*Dr. Bromfield*.

Annual; flowering in July.

This is a larger and handsomer flowering plant than the last, its larger variegated spikes of bright colours render it very conspicuous. It is easy of cultivation in a dry sandy soil, and far surpasses in beauty many other flowers that are highly prized, and much sought after by our fair cultivators of these beauties of creation.

3. *M. pratense*, Linn. (Fig. 980.) *Common Yellow Cow-Wheat*. Spike of a few lax flowers, one sided; bracteas lanceolate, toothed or pinnatifid at the base; corolla four times as long as the smooth calyx; the lower lip straight.

English Botany, t. 113.—English Flora, vol. iii. p. 125.—Hooker, British Flora, ed. 4. vol. i. p. 237.—Lindley, Synopsis, p. 195.

β. montanum. Smaller, somewhat succulent; bracteas quite entire.

Hooker, British Flora, ed. 4. vol. i. p. 237.—*M. montanum*, Johnst. Flora of Berwick.

Root of branched fibres. *Stem* erect, about a foot high, slender, angular, smooth, branches numerous, spreading. *Leaves* opposite, distant, narrow, lanceolate, with a tapering point, bright green, paler beneath, with a stout mid-rib and lateral veins, smooth, or somewhat hairy, especially on the edges. *Inflorescence* a lax terminal one sided spike of few flowers. *Bracteas* lanceolate, the lower ones entire, the upper toothed or pinnatifid at the base, paler than the leaves, often tinged with pink. *Calyx* small, with four lanceolate teeth, about as long as its tube. *Corolla* yellow, the tube gradually dilated upwards, four times as long as the calyx, the lips deeper yellow, the upper one concave, obtuse, cleft, the margins recurved, densely hairy, the lower lip straight, protruding with a purple spot on each side near the base, the palate swollen, of a deep orange colour. *Stamens* with the filaments inserted about the middle of the tube. *Anthers* united. *Capsule* ovate, with a curved point. *Seeds* one or two in each cell.

Habitat.—Woods, groves, and shady places; common, especially in a light soil.

Annual; flowering in July and August.

This is the most common of our species, and like the others turns black in drying. The bracteas are frequently all entire, and the lower pair of leaves are ovate, spatulate.

4. *M. sylvaticum*, Linn. (Fig. 981.) *Lesser flowered wood Cow-Wheat*. Spike of a few distant pairs of flowers; bracteas lanceolate, entire; corolla scarcely longer than the smooth calyx, the lower lip reflexed.

English Botany, t. 804.—English Flora, vol. iii. p. 126.—Hooker, British Flora, ed. 4. vol. i. p. 237.—Lindley, Synopsis, p. 195.

Root of branched fibres. *Stem* slender, branched, spreading, angular, roughish. *Leaves* in distant pairs, lanceolate, taper pointed, a bright green, paler beneath, with a stout mid-rib and lateral branches, sessile, or the upper ones with short footstalks. *Inflorescence* solitary, axillary, nearly sessile, flowers scarcely forming a spike. *Bracteas* or floral leaves entire. *Calyx* tubular, the limb of four ovate lanceolate segments, nearly as long or longer than the tube of the corolla, smooth. *Corolla* yellow, the tube dilated upwards, the upper lip curved, concave, the lower of three lobes, reflexed, with two crimson spots at the base. *Stamens* with two of the *filaments* longer than the others. *Capsules* ovate, acute, somewhat curved at the point, netted with prominent veins, the cells one or two seeded.

Habitat.—Alpine woods, rare; in the North of England more general, but not common in Scotland.

Annual; flowering in July.

GENUS XXVI. BARTSIA.—LINN. *Bartsia*.

Nat. Ord. SCROPHULARIACEÆ. LIND.

GEN. CHAR. *Calyx* campanulate, four-cleft, mostly coloured.

Corolla ringent, with a contracted mouth, upper lip arched, entire, lower one of three equal reflexed lobes. *Capsule* ovate, compressed, two celled. *Seeds* numerous, compressed, and unequally ribbed.—Named in honour of *John Bartsch*, a Prussian Botanist, and friend of Linnæus, who died at Surinam.

1. *B. al'pina*, Linn. (Fig. 982.) *Alpine Bartsia*. Leaves opposite, ovate, sessile, obtusely serrated; root creeping.

English Botany, t. 361.—English Flora, vol. iii. p. 117.—Hooker, British Flora, ed. 4. vol. i. p. 235.—Lindley, Synopsis, p. 190.

Root with creeping suckers. *Stem* ascending from four to eight inches high, obtusely angular, downy, simple, leafy. *Leaves* opposite,

ovate, sessile, somewhat heart-shaped, and slightly embracing the stem, dark green above and somewhat hairy, beneath paler, downy, reticulated with veins, the margins obtusely serrated. *Inflorescence* a few axillary flowers in the axis of the upper leaves, and forming a sort of spike. *Bracteas* rather smaller than the leaves, often a purplish pink. *Calyx* bell-shaped, deeply four-cleft, the teeth ovate, acute, ribbed, veiny, and downy, viscid. *Corolla* three times longer than the calyx, of a purplish violet colour, downy and viscid, the tube somewhat dilated upwards, compressed, the upper lip concave, entire, the lower reflexed, of three nearly equal ovate acute lobes. *Stamens* four, the *filaments* of unequal lengths, inserted into the tube. *Anthers* ovate, woolly, two celled. *Style* protruded. *Stigma* obtuse. *Capsules* ovate, acute, furrowed, two celled, downy. *Seeds* numerous, angularly compressed, with a crenated pale brown membranous margin from the angle.

Habitat.—Rocky alpine pastures, rare; near Orton, Westmoreland; Middleton Teesdale, Yorkshire; on Malghyrdhy and Ben Lawers, in the Breadalbane Mountains, Scotland.

Perennial; flowering in June and July.

This species is readily distinguished from the following by its smaller size, ovate leaves, purple flowers, and creeping suckers. Though rare with us it is frequent in the alpine districts of the Continent, especially on the Alps of Switzerland and Savoy.

2. *B. visco'sa*, Linn. (Fig. 983.) *Yellow viscid Bartsia*. Leaves lanceolate, sessile, deeply serrated, the lower opposite, the upper alternate; flowers axillary, distant; roots fibrous.

English Botany, t. 1045.—English Flora, vol. iii. p. 118.—Hooker, British Flora, ed. 4. vol. i. p. 235.—Lindley, Synopsis, p. 190.

Root of branched fibres. *Stem* erect, solitary, round, simple, downy, from one to one and half feet high, leafy. *Leaves* lanceolate, sessile, somewhat embracing the stem, downy, deeply and coarsely serrated, dark green above, paler beneath, and reticulated with veins, the lower ones opposite, the upper alternate. *Inflorescence* a loose terminal spike of axillary flowers on about half the stem, sessile, becoming elevated on a short round downy pedicle. *Bracteas* similar to the leaves, gradually becoming smaller towards the top, and more viscid. *Calyx* bell-shaped, ribbed, and clothed with soft viscid pubescence, the limb of four narrow oblong lanceolate teeth, about as long as the tube. *Corolla* yellow, the tube narrow, dilated in the throat, upper lip concave, entire, downy, the lower spreading, of three equal rounded spreading lobes, striated with crimson. *Stamens* inserted into the middle of the tube. *Anthers* ovate, of two pointed hairy cells. *Style* hairy. *Stigmas* large, obtuse. *Capsule* oblong, acute, furrowed, and somewhat hairy. *Seeds* very numerous, minute, ovate, brown.

Habitat.—Moist meadows and pastures in the West of England, Wales, the South-West of Scotland, the South of Ireland, and in Jersey, but not very common.

Annual; flowering in August.

3. *B. odontites*, Huds. (Fig. 984.) *Red Bartsia*. Leaves lanceolate, sessile, distantly serrated, the lower opposite, the upper alternate; bractees oblong lanceolate, longer than the sessile unilateral crowded spiked flowers; corolla densely pubescent, the upper lip compressed, the lower three-cleft and spreading; anthers pubescent at the base; root fibrous.

English Botany, t. 1415.—English Flora, vol. iii. p. 119.—Hooker, British Flora, ed. 4. vol. i. p. 235.—Lindley, Synopsis, p. 191.

β. serotina. Leaves narrower, bractees shorter than the flowers.

B. serotina, Bert. amoen. Ital. p. 33.—*Euphrasia Odontites*, *β.* Linn.

Root fibrous. *Stem* erect, square, much branched, rough, with reflexed hairs from six to eighteen inches high, leafy. *Leaves* lanceolate, sessile, the lower opposite, the upper alternate, rough, with short hairs, dark green above, paler beneath, the margins coarsely and distantly serrated. *Inflorescence* a long terminal many flowered one-sided spike. *Bractees* ovate lanceolate, longer than the flowers, or sometimes they are small, linear, almost entire, and shorter than the flowers, reddish. *Calyx* bell-shaped, rough, with hairs deeply four-cleft into lanceolate teeth as long as the tube. *Corolla* a dull rose colour, densely pubescent, especially the upper lip, the tube narrow, dilated upwards, the upper lip compressed, obtuse, concave, the lower three-cleft, reflexed, the lateral lobes oblong, the middle one obtuse, veiny. *Stamens* protruding, the *anthers* large, of two ovate pointed cells, somewhat pubescent at the connecticum. *Styles* rough. *Stigmas* obtuse. *Capsules* ovate, downy, many seeded. *Seeds* numerous, small, striated.

Habitat.—Corn fields, road sides, and waste places; frequent.

Annual; flowering in July and August.

This is readily distinguished from the other species by its much branched stem, its erect one sided many flowered spikes of a dull rose colour. The varieties appear to be only those produced by difference in soil and situation. It is frequently gathered by the country people, and an infusion of the whole plant used for the cure of inflamed eyes, which, perhaps, is equally as efficacious as the following, which has been so highly esteemed.

GENUS XXVII. EUPHRA'SIA.—LINN. *Eye-bright*.

Nat. Ord. SCROPHULARIACEÆ. LIND.

GEN. CHAR. *Calyx* tubular, or campanulate, four toothed. *Corolla* with the upper lip divided, the lower one of three nearly equal lobes. *Capsule* ovate oblong, obtuse, or emarginate, two celled.

Seeds numerous, equally striated.—Name from *Euphrosyne*, joyful; from the pleasure produced by the medicinal properties of this plant.

1. *E. officinalis*, Linn. (Fig. 985.) *Common Eye-bright*. Leaves ovate, toothed, the teeth acuminate, those of the upper leaves bristle pointed; corolla with the upper lip cleft, the lobes two or three toothed, the lower of three unequal emarginate lobes.

English Botany, t. 1416.—English Flora, vol. iii. p. 123.—Hooker, British Flora, ed. 4. vol. i. p. 236.—Lindley, Synopsis, p. 191.

β. neglecta. Leaves and bractea all obtusely toothed, the whole plant scarcely hairy.

Root simple, fibrous, branched. *Stem* erect, obtusely angular, more or less clothed with close pubescence, from one to six or eight inches high, and either simple or much branched, leafy. *Leaves* opposite, ovate, sessile, toothed, dark green and furrowed above, paler and strongly ribbed beneath, the margins deeply toothed, the serratures acute, or lengthened into a bristly point, smooth or downy. *Inflorescence* solitary axillary sessile flowers, frequently from almost the base of the stem, crowded above into a spike. *Flowers* though mostly very numerous are frequently few, and at the extremity of the stem and branches, sometimes there is only one flower. *Calyx* bell-shaped, ribbed and hairy, the limb of four lanceolate teeth. *Corolla* with a white narrow tube, dilated at the mouth, smooth, the upper lip clothed at the back with close woolliness, bifid, the lobes toothed, the lower lip reflexed, three-cleft, the lobes unequal and notched, the palate yellow, and both lips more or less pink and striated with purple. *Stamens* with slender filaments, the anthers purple, of two lobes, pointed at the base. *Style* slender, rough. *Stigma* obtuse. *Capsule* ovate oblong, downy, notched, furrowed, two celled. *Seeds* ovate, acute, striated, or furrowed, small, brown.

Habitat.—Pastures and heathy places and mountainous situations; common.

Annual; flowering in July.

This is an extremely variable plant both as to size and hairiness, and the flowers vary not only in size but number and colour: often in a dry sandy soil, the plant is an inch high, simple, and bearing perhaps only one flower; or it is six inches high in a more moist situation, and bearing flowers from the axis of almost every leaf. The colour of the flowers is white or pinkish, with a yellow palate, striated with purple, or it is altogether almost purple; but in all its varieties it is extremely delicate and beautiful, for which reason it seems to have been thought useful in the cure of almost all diseases of the eyes. So famed were its virtues, that Milton represents the Archangel Michael as using it in combination with Rue, to remove the film from the eyes of our first parents, occasioned by eating the forbidden fruit.

“Then purged with Euphrasy and rue
The visual nerve, for he had much to see.”



984

Bartsia odontites.



985

Euphrasia officinalis.



986

Limosella aquatica.



987

Scrophularia nodosa.



988

Scrophularia aquatica.



989

Scrophularia balbisia.



Shenstone's schoolmistress is made to say in praise of *Euphrasia*—

"Fam'd *Euphrasy* may not be left unsung,
That gives dim eyes to wander leagues around."

It is still used by the country people for affections of the eyes, but has lost its high famed virtues. In Scotland it is said to be infused in milk, and applied to the eyes with a feather.

GENUS XXVIII. LIMOSELLA.—LINN. *Mudwort*.

Nat. Ord. SCROPHULARIACEÆ. LIND.

GEN. CHAR. *Calyx* five-cleft, equal. *Corolla* campanulated, five-cleft, equal. *Stamens* nearly equal, with the cells of the anthers united. *Stigma* capitate. *Capsule* globose, one celled, with a central placenta.—Name from *Limus*, on account of the plant growing in muddy places.

1. *L. aquatica*, Linn. (Fig. 986.) *Common Mudwort*. Leaves lanceolate, spatulate; flower solitary, pedunculated.

English Botany, t. 357.—English Flora, vol. iii. p. 145.—Hooker, British Flora, ed. 4. vol. i. p. 240.—Lindley, Synopsis, p. 192.

β. caulescens, Koch. Scape one to two inches high, many flowered. *Root* fibrous, mostly putting out several round running creepers, from one to two inches long, which put out roots, and form new plants. *Leaves* small, lanceolate, or spatulate, on long slender footstalks, from one to two inches long or more, smooth, as is the whole plant. *Flowers* solitary, on a slender round pedicle, about an inch long, or several terminating a scape, which arises from the pale membranous base, of one or two short leaves. *Calyx* campanulate, deeply five-cleft, smooth. *Corolla* with a cylindrical tube, as long as the calyx, swollen upwards, the limb pink, spreading, cut into five acute segments, nearly equal. *Stamens* with awl-shaped *filaments*, arising from the mouth of the tube. *Anthers* roundish, of two lobes. *Style* short. *Stigma* obtuse. *Capsule* ovate, almost globose, smooth, slightly furrowed, two valved, one celled. *Seeds* numerous, small, brown, transversely wrinkled, attached to a central placenta.

Habitat.—Muddy places in various parts of England, Scotland, and Ireland.

Annual; flowering in July and August.

A small herbaceous plant, often overlooked on account of its size and insignificant appearance. The variety *β.* appears to be an erect luxuriant creeper, which finds sufficient support from the parent plant to nourish its cluster of flowers and leaves, and consequently it has not sought more by putting out additional roots.

GENUS XXIX. SCROPHULARIA.—LINN. *Figwort.*

Nat. Ord. SCROPHULARIACEÆ. LIND.

GEN. CHAR. *Calyx* five lobed, or deeply cleft. *Corolla* sub-globose, the limb small, five lobed, the lower lobe reflexed, and frequently beneath the upper is a small scale (abortive stamen). *Capsule* two celled, two valved, with the margins turned inwards.—Named from *Scrophula*, a disease, which some plants of this genus were supposed to cure.

* *Calyx* with five rounded lobes; flowers purple.

1. *S. nodo'sa*, Linn. (Fig. 987.) *Knotted Figwort.* Leaves cordato-triangular, acute, doubly serrated, smooth, three ribbed at the base; stem acutely quadrangular; calyx with ovate obtuse segments, having a very narrow membranous margin; scale within the upper lip transversely oblong, obsoletely emarginate; root tuberous.

English Botany, t. 1544.—English Flora, vol. iii. p. 138.—Hooker, British Flora, ed. 4. vol. i. p. 239.—Lindley, Synopsis, p. 192.

Root fleshy, tuberous, with a few long branched fibres. Stem erect, from two to four feet high, rather obtusely angular, scarcely branched, smooth. *Inflorescence* a terminal erect branched panicle. Leaves numerous, petiolated, triangular, heart-shaped, with long tapering points, or ovate, heart-shaped, acutely pointed, three ribbed at the base, somewhat running down the footstalk, strongly serrated with acute doubly serrated margins, quite smooth, dark green above, paler beneath. Panicle with its rather long branches and pedicles more or less thickly scattered over with short glandular hairs. Bractees small, awl-shaped. Calyx with five ovate obtuse segments, having a narrow pale thin membranous margin. Corolla with a green almost globose tube, the limb dull purple, two lipped, the upper lip in two straight lobes, roundish, having within at the throat a transversely oblong scale, somewhat notched, the lower lip of three short rounded lobes, reflexed. Stamens short, included within the corolla. Anthers large. Style short. Stigma obtuse. Capsule ovate, acute, smooth. Seeds numerous, small, rough, dark brown, attached to a central receptacle.

Habitat.—Woods, moist banks, and hedges; frequent.

Perennial; flowering in July.

This is a variable plant as to its size and the form of its leaves. The upper leaves are usually triangular, heart-shaped, with the base acutely angular, and the point gradually tapering, sometimes all the leaves are of this form, but mostly the lower leaves are ovate, heart-shaped, with the base rounded; all have the footstalk divided into three branched ribs at the base of the leaf, and forming the lower margin. The whole plant has a disagreeable odour when bruised; the leaves, as well as the fleshy roots, have been used and obtained great

celebrity for their medicinal properties; externally they were applied as a remedy in inflammatory affections, and the expressed juice or infusion was taken internally for the same diseases, as well as for scrophulous tumours, old ulcers, and hæmorrhoides; but the plant is not now used for the cure of any of these diseases, indeed its originally being used as a medicine appears to have been rather from the knobs upon the roots bearing some resemblance to scrophulous tumours, than the effects which it produced upon the body.

2. *S. aquatica*. (Fig. 988.) *Water Figwort*, *Water Betony*. Leaves ovate oblong, or ovate heart-shaped, serrated, smooth; petiole and stem winged on the margins; calyx with roundish obtuse segments, having a broad membranous margin; scale within the upper lip bifid, with spreading lobes; root fibrous.

English Botany, t. 854.—English Flora, vol. iii. p. 139.—Hooker, British Flora, ed. 4. vol. i. p. 239.—Lindley, Synopsis, p. 193.

Root of numerous branched fibres. *Stem* erect, from three to four feet high, smooth, the angles winged, simple or branched. *Leaves* numerous, opposite, on narrow winged footstalks, ovate oblong, or oblong, with a heart-shaped base, smooth, the margin crenato-dentate, dark green above, paler beneath and veiny, but the mid-rib and veins not three branched at the base, as in the last species. *Inflorescence* a long terminal *panicle*, the branches short, bearing many flowers in sub-corymbose clusters, the pedicles short, somewhat scattered over with very short glandular hairs. *Bractees* awl-shaped. *Calyx* in five roundish obtuse segments, with a broad thin membranous margin. *Corolla* with a green sub-globose tube, the limb of short lobes, a deep blood red colour, the upper lip straight, two lobed, having a bifid scale at the base within, the lobes spreading, the lower lip of three short notched segments, the middle one recurved. *Stamens* with short *filaments*, and rather large *anthers*. *Style* short. *Stigma* two lobed. *Capsule* short, sub-globose, with an acute point, crowned by the persistent style. *Seeds* numerous, small, ovate, brown, rough, and wrinkled.

Habitat.—Sides of rivers and wet places; less frequent than the last species.

Perennial; flowering in July.

The properties of this species are similar to the last, and the herbage of this as well as that of the other species is refused by almost all animals. The plant is, nevertheless, not injurious, as would appear from its roots having been used by the French soldiers during the celebrated siege of Rochelle, in 1628, by Cardinal Richelieu, when they were driven to great extremities. Since that time this plant has been called by the French "*herbe du siège*."

3. *S. Bal'bisii*, *Hornem.* (Fig. 989.) *Balbises Figwort*. Leaves oblong, heart-shaped, obtuse, obtusely crenated, and at the base on

each side mostly auriculated with small leaflets; stem and petioles winged; calyx with roundish obtuse segments, having a broad membranous margin; scale within the upper lip roundish, obtuse, scarcely notched.

Hornemann Hortus Hafniensis, vol. ii. p. 577.—Koch. Flora Germanica et Helveticæ, p. 515.

Stem erect, from two to three feet high, square, with winged sub-membranous angles, simple or branched, smooth and shining. *Leaves* opposite, oblong, obtuse, heart-shaped at the base, the upper ones sometimes ovate, heart-shaped, and all or part of them having on each side at the base a narrowish ovate spreading auriculated appendage, quite smooth, and shining, dark green above, pale and dull beneath, with a stout midrib and lateral branches, the margin of the lower ones obtusely crenated, of the upper sometimes acutely crenated, petioles winged on the edges. *Inflorescence* similar to the last species, a long terminal panicle, the branches short, bearing numerous flowers in sub-corymbose clusters, more or less thickly scattered over with short glandular hairs. *Bractees* awl-shaped. *Calyx* in five roundish very obtuse segments, with a pale thin membranous margin, often fimbriated on the edge. *Corolla* larger than the last species, a deep purplish red, the tube sub-globose, slightly green at the base, the upper lip straight, of two roundish obtuse lobes, having at the base within a roundish obtuse notched scale. *Stamens* with short *filaments* and rather large *anthers*. *Style* simple. *Stigmas* obtuse. *Capsule* broad, sub-globose, acute. *Seeds* small, rough, wrinkled, dark brown, numerous.

Habitat.—On the banks of a stream in the Bottoms, Mansfield, Nottinghamshire.

Perennial; flowering in July.

This species we have had in our collection some years as a variety of the *S. aquatica*, from which species, however, it is distinguished by its ovate oblong auricular crenated leaves, its larger darker coloured flowers, and the scale of the upper lip being roundish, scarcely notched, not bifid. The capsule is larger and broader, depressed, globose, acute. We have not found it except in the above situation, where it was growing luxuriantly.

4. *S. Scro'donia*, Linn. (Fig. 990.) *Balm-leaved Figwort*. Downy, leaves triangular, heart-shaped, with large doubly crenated margins, lobed at the base; panicle long, terminal, leafy, with opposite or alternate short few flowered branches; calyx with oblong downy segments.

English Botany, t. 2209.—English Flora, vol. iii. p. 139.—Hooker, British Flora, ed. 4. vol. i. p. 239.—Lindley, Synopsis, p. 193.—*S. Scopoli*, Hopp.

Stem from three to four feet high, erect, downy, obtusely angular, leafy, more or less branched. *Leaves* opposite, the upper ones sometimes alternate, large, triangular, heart-shaped, with rounded mostly



990 *Scrophularia scorodonia.*



991 *Scrophularia vernalis.*



992 *Antirrhinum majus.*



993 *Antirrhinum orontium.*



994 *Linaria cymbalaria.*



995 *Linaria apuria.*

lobed angular base, or ovate oblong, and sometimes slightly heart-shaped at the base, and three ribbed, dark green, paler, and more downy on the under side, wrinkled with netted veins, the margin more or less lobed, especially at the base, and doubly crenated, or acutely toothed, the footstalks long, channeled above, downy. *Inflorescence* a long terminal leafy panicle, with opposite and alternate branches, short and subdivided, downy. *Bracteas* linear, awl-shaped. *Calyx* of ovate obtuse downy segments, with a narrowish membranous margin. *Corolla* with a pale yellowish green sub-globose tube, the limb a dull purplish red, the upper lip straight, of two rounded short lobes, having a rounded lobe within, the lower of three short rounded recurved lobes. *Stamens* with short *filaments*, and rather large yellowish *anthers*. *Capsules* smooth, roundish ovate, acute, many seeded.

Habitat.—Hedges and cliffs in moist places in the South and South-West of England, and at Tralee, in Ireland.

Perennial or biennial; flowering in July.

This is distinguished from all other of our species by its downiness, the leaves being lobed or doubly crenated, wrinkled, and the panicle long and leafy. Sir W. J. Hooker observes, that "the Rev. Mr. Bree has sent me a plant which he considers a hybrid between *S. scorodonia* and *S. aquatica*, brought from St. Ives and cultivated in his garden."

**** *Calyx* with five deep acute segments; flowers yellow.**

5. *S. verna'lis*, Linn. (Fig. 991.) *Yellow Figwort*. Downy, leaves broadly heart-shaped, doubly serrated and cut; panicle leafy, the branches axillary, three to seven flowered, sub-corymbose; calyx with oblong acute segments; corolla without an inner scale.

English Botany, t. 567.—English Flora, vol. iii. p. 140.—Hooker, British Flora, ed. 4. vol. i. p. 239.—Lindley, Synopsis, p. 193.

Root somewhat tuberous. *Stem* erect, from two to three feet high, hollow, square, with somewhat winged angles, simple or branched, downy. *Leaves* numerous, opposite, and alternate, sometimes there are three together, in which case the stem has five angles, all downy, broadly heart-shaped, petiolated, the margin mostly cut, especially at the base, and doubly serrated, light green above, paler beneath, and more hairy, the veins and mid-rib prominent. *Inflorescence* a terminal leafy panicle, of short angular axillary branches, each terminating in a sub-corymbose cluster of about seven flowers, the partial stalks short, forked, and leafy. *Calyx* in five ovate oblong obtuse hairy segments, with a narrowish membranous margin. *Corolla* pale yellow, globose, the mouth contracted, the limb of five short obtuse rounded lobes, without an internal scale. *Stamens* nearly equal, the *filaments* thread-shaped, arising from the base of the corolla, protruded with the slender style. *Capsule* ovate, acute. *Seeds* numerous, minute.

Habitat.—Under hedges and road sides in various parts of England, Wales, and Scotland, but rare.

Biennial; flowering in April and May.

This beautiful species of *Scrophularia* is very different in appearance from our other species, and as Sir J. Smith has well observed, bears a great affinity to some of the species of *Calceolaria*, which beautiful tribe of plants we may observe belong to the same natural order, but differ in generic character in having only two stamens, while the *Scrophularia* have four.

GENUS XXX. ANTIRRHINUM.—LINN. *Snap-dragon*.

Nat. Ord. SCROPHULARIACEÆ. LIND.

GEN. CHAR. *Calyx* five partite. *Corolla* personate, swollen on one side at the base (not spurred), its mouth closed by a prominent swollen palate, upper lip bifid, the lower three-cleft. *Capsule* two celled, oblique, opening by three pores at the apex.—Name from *αντι*, resembling; and *ειρ*, a nose, snout, or mask; from the remarkable appearance which the corolla has to the snout of some animals.

1. *A. majus*, Linn. (Fig. 992.) *Great Snap-dragon*. Leaves lanceolate, opposite and alternate; flowers spiked; calyx segments ovate, obtuse, much shorter than the corolla.

English Botany, t. 129.—English Flora, vol. iii. p. 136.—Hooker, British Flora, ed. 4. vol. i. p. 238.—Lindley, Synopsis, p. 192.

Root fibrous. *Stems* mostly numerous, erect or ascending, from one to two feet high, simple or branched, clothed with close soft down, glandular and viscid above. *Leaves* mostly numerous and crowded, scattered on the stem, opposite on the branches, smooth, lanceolate, tapering into a footstalk, dark green above, paler beneath, with a stoutish mid-rib. *Inflorescence* a terminal racemose spike of numerous crowded flowers. *Bractees* ovate, downy. *Pedicles* round, short, downy. *Calyx* in five ovate oblong downy segments, unequal in length. *Corolla* large, rose colour, with a prominent yellow palate, downy within, the tube somewhat dilated upwards, about an inch long, swollen on the under side at the base, smooth, veiny, paler than the lips, sometimes white, and occasionally downy, the lips large, often a deep rose colour, sometimes yellow, as well as the tube, or altogether white, the upper lip broadly ovate, deeply cleft into two lobes, mostly waved on the margin, the lower in three reflexed roundish ovate unequal lobes, the palate large, swollen in two protuberances, yellow, furrowed and downy between. *Stamens* included, arising from the base of the tube, the *filaments* linear, somewhat dilated upwards. *Anthers* of two ovate cells, and between the two upper ones is a fifth abortive stamen. *Style* as long as the lower stamens, linear, downy. *Stigma* obtuse. *Capsule* obliquely ovate, opening by three pores near the apex. *Seeds* numerous, small, black, and wrinkled.

Habitat.—Old walls and ruins, or rocks and cliffs; not unfrequent

in various parts of the country, but probably the outcast of gardens, from whence it has escaped and become naturalized.

Perennial; flowering in July and August.

This is an extremely beautiful showy plant, commonly cultivated in gardens; it varies greatly in the colour of its flowers, from a fine dark crimson to pale pink, yellow, and white, and not unfrequently the tube is white, and the lips dark crimson, and the palate yellow, or the tube is variegated with pink and white. It is easy of cultivation in a dry sandy soil, very hardy, and continues in flower a long time.

2. *A. Oron'tium*, Linn (Fig. 993.) *Lesser Snap-dragon*. Leaves lanceolate, alternate and opposite; spike of a few distant axillary flowers; calyx with lanceolate segments, longer than the corolla.

English Botany, t. 1155.—English Flora, vol. iii. p. 137.—Hooker, British Flora, ed. 4. vol. i. p. 238.—Lindley, Synopsis, p. 192.

Root of branched fibres. *Stem* erect, from a few inches to two feet high, simple, or mostly branched at the base, round, smooth below downy above. *Leaves* lanceolate or linear lanceolate, tapering into a footstalk, the lower sometimes ovate, opposite, the upper mostly alternate, more or less downy, paler beneath, and with a stout mid-rib, *Inflorescence* a lax spike of distant axillary alternate flowers, the floral leaves or bracteas linear. *Calyx* of five long linear smooth or downy segments, at first not longer than the corolla, but shortly becoming almost as long again. *Corolla* purplish pink, small, the tube nearly cylindrical, pale, striated, the upper lip broadly ovate, of two shallow lobes, the lower lip of three unequal ovate acute ones, the palate yellowish, orange coloured, downy within. *Stamens* with linear filaments, inserted into the base of the tube. *Anthers* small, yellow, of two ovate cells. *Style* as long as the stamens. *Stigma* obtuse. *Capsule* downy, obliquely ovate, opening at the end with three valved pores, the base of the style persistent. *Seeds* small, numerous, black, furrowed.

Habitat.—Corn fields, but not common; more frequent in the South and South-east of England in a light soil.

Annual; flowering in July and August.

The flowers of this species are small and insignificant compared with the last species. It is much more frequent in the corn fields and vineyards on the Continent, especially in Italy, than with us.

GENUS XXXI. LINARIA.—Juss. *Toadflax*.

Nat. Ord. SCROPHULARIACEÆ. LIND.

GEN. CHAR. *Calyx* five partite. *Corolla* personate, spurred at the base, its mouth closed by a prominent swollen palate, upper lip bifid, the lower three-cleft. *Capsule* two celled, opening at the

apex with entire or toothed valves.—Named from *Linum, flax*; so called from the resemblance of some of the species to flax.

* *Stems prostrate; leaves broad, dilated.*

1. *L. Cymbalaria, Mill.* (Fig. 994.) *Ivy-leaved Toadflax.* Leaves roundish, heart-shaped, five lobed, petiolated, smooth; stem prostrate.

Hooker, British Flora, ed. 4. vol. i. p. 238.—Lindley, Synopsis, p. 191.—*Antirrhinum Cymbalaria*, Linn.—English Botany, t. 502.—English Flora, vol. iii. p. 131.

Root fibrous. Stems round, smooth, prostrate, trailing, branched and leafy. Leaves alternate, with flat footstalks, smooth, somewhat fleshy, roundish, heart-shaped at the base, five lobed, a smooth shining deep green above, paler or somewhat purplish beneath. Inflorescence solitary axillary flowers, with round long slender spreading stalks. Calyx with five lanceolate segments, shorter than the tube of the corolla, which is cylindrical, pale purple, with a short pointed spur at the base on the under side, the limb two lipped, the upper one of two oblong obtuse lobes, purple, with deeper coloured veins, the lower reflexed, of three obtuse lobes, the palate yellow, swollen into two obtusely conical protuberances, downy within. Stamens inclosed, and between the two upper is a fifth abortive one, the filaments linear. Style short. Capsule sub-globose, bursting irregularly at the top. Seeds not very numerous, small, black, wrinkled.

Habitat.—Crevices of old walls and rocks; not uncommon, but escaped from the garden, and naturalized.

Perennial; flowering during the summer months.

The long festoons which are formed by the much branched slender stems of this pretty graceful plant are highly ornamental to old walls, rocks, and ruins, upon which it fixes itself, and seems to revel in the conquest which time has gained o'er the proudest monuments of man; and though

"High on the rock its wild flowers shine,
In beauty bathed and joy divine;
In their dark nooks to them are given
The sunshine and the dews of heaven."

Wilson.

Few plants are better suited for ornamental rock work than this; its leaves are almost constantly green, and its beautiful delicate little flowers are blooming almost all the year round in a sheltered situation. The leaves have a warm bitterish flavour, and have been recommended as an antiscorbutic, and it is related by Hamilton that in India it is given mixed with sugar in cases of diabetes, and it is reported with good effect. A remedy so simple, in the long progress of this distressing disease over which remedial measures at present known seem to have little or no effect, is worth the trial.

2. *L. spuriā, Mill.* (Fig. 995.) *Round-leaved Toad-flax.* Leaves roundish ovate, entire, downy, mostly alternate; stems prostrate; peduncles downy; spur of the flower subulate, curved.



996

Linaria elatine.



997

Linaria repens.



998

Linaria vulgaris.



999

Linaria vulgaris v. peloria.



1000

Linaria minor.



1001

Sibthorpia europaea.

Hooker, British Flora, ed. 4. vol. i. p. 238.—Lindley, Synopsis, p. 191.—*Antirrhinum spurium*, Linn.—English Botany, t. 691.—English Flora, vol. iii. p. 132.

Root of branched fibres. *Stems* numerous, long, prostrate, much branched and leafy, round, downy, slender. *Leaves* roundish, ovate, obtuse, with a minute point, downy, entire, or very rarely with one or two notches, the footstalks short, slender, alternate, or the lower ones sometimes opposite. *Inflorescence* solitary, axillary flowers, on slender hairy *pedicles*, about as long as the leaves. *Calyx* large, in five ovate lanceolate downy segments. *Corolla* small, the upper lip short, purple, deeply cleft, the lower reflexed, yellow, of three unequal ovate lobes, the palate prominent, of two swollen deep orange coloured downy protuberances. *Stamens* inclosed of unequal lengths beneath the upper lip, and between the perfect stamens is an abortive one. *Capsule* smooth, sub-globose, enclosed in the enlarged calyx. *Seeds* numerous, ovate, brown, most beautifully reticulated over with pale elevated lines.

Habitat.—Corn fields, rare; Norfolk, Suffolk, and the South-east coast of England.

Annual; flowering from July to September.

A remarkable variety of this species is sometimes found having the flowers in five regular clefts, five spurred, and in which the fifth stamen is developed; or in place of the whole five divisions being developed, two or three of them only may be found so.

3. *L. Elatine*, Desf. (Fig. 996.) *sharp-pointed Fluellin, or Toad-flax*. *Leaves* hastate, acute, the lower ones ovate, entire, downy, mostly alternate; stems prostrate; peduncles long, slender, smooth; spur of the flower subulate, straight.

Hooker, British Flora, ed. 4. vol. i. p. 238.—Lindley, Synopsis, p. 191.—*Antirrhinum Elatine*, Linn.—English Botany, t. 692.—English Flora, vol. iii. p. 133.

Root small, fibrous. *Stems* numerous, long, prostrate, scarcely branched, leafy, downy, slender. *Leaves* alternate, broadly halbert-shaped, acute, the lobes lanceolate, downy, the petioles short, the lower leaves roundish ovate, and mostly opposite. *Inflorescence* solitary axillary flowers, on slender smooth *pedicles*, longer than the leaves. *Calyx* in five ovate lanceolate downy segments. *Corolla* small, with a pale greenish yellow tube, and straight awl-shaped spur, upper lip short, erect, dark purple, two lobed, the lower reflexed, short, of three unequal lobes, palate yellow, downy, of two prominent swollen protuberances. *Stamens* four, with an abortive one between the two upper ones. *Capsules* sub-globose, smooth, enveloped in the persistent enlarged calyx. *Seeds* numerous, ovate, brown, beautifully reticulated with pale elevated lines like those of the last species.

Habitat.—Corn fields, especially in a dry soil; frequent in England and Ireland.

Annual ; flowering from July to September.

The flowers of this species, like the last, are sometimes found in five equal parts, with five spurs, and the abortive stamen developed. It is a much more frequent plant than the last, and is readily distinguished by the halbert-shaped leaves, the slender smooth pedicles, and the straight spur of the corolla.

**** Stem erect, leaves narrow, linear or lanceolate.**

4. *L. re'pens*, Ait. (Fig. 997.) *creeping pale blue Toadflax*. Whole plant smooth ; stem erect, paniced ; leaves linear lanceolate, the lower whorled, the upper scattered ; racemes lax ; calyx with lanceolate acute segments, shorter than the capsule ; spur short, obtuse ; corolla striated ; seeds triangular, ovate, rough, and pitted.

Hooker, British Flora, ed. 4. vol. i. p. 238.—Lindley, Synopsis, p. 191.—*Antirrhinum repens*, Linn.—English Botany, t. 1253.—English Flora, vol. iii. p. 133.—*Linaria striata*, De Cand.

Root of long twisted stout branches, putting up now and then flowering branches. Stems mostly several, round, smooth, from one to two feet high, erect, leafy, branched in a paniculated manner above. Leaves linear lanceolate, pale, somewhat glaucous green, quite smooth, paler beneath, with a mid-rib, and sometimes obscurely two lateral veins, the lower ones somewhat petiolated, and in whorls of about four each, the upper more or less irregularly scattered. Inflorescence paniculated racemes of numerous flowers. Bractees awl-shaped, shorter than the erect slender pedicles, smooth, as well as the oblong acute segments of the calyx. Corolla a pale blue, striated with purple, the tube broad, somewhat dilated upwards, the spur short, conical, obtuse, yellowish, as well as the reflexed three lobed under lip, the upper erect, deeply two lobed, the palate of two large swollen protuberances. Stamens arising from the base of the tube. Filaments awl-shaped. Capsule smooth, globose, enveloped by the persistent calyx, and crowned by the withered style. Seeds not very numerous, triangular, ovate, rough, with reticulated lines, and pitted.

Habitat.—Stony banks and rocks near the sea, rare ; in the South of England and Ireland ; near Cobzean, Ayrshire, and near Musselburgh, Scotland.

Perennial ; flowering from July to September.

The flowers of this species are very pretty, small, and delicate, and sometimes are found in five regular parts, as is the case with some of the others, or perhaps occasionally all the species.

5. *L. vul'garis*, Mæsch. (Fig. 998.) *common yellow Toadflax*. Smooth, erect, leaves linear lanceolate, acute, numerous, crowded ; raceme terminal, crowded ; calyx of oblong lanceolate acute segments, shorter than the spur ; seeds with a flat orbicular wing, rough and tuberculated in the centre.

Hooker, British Flora, ed. 4. vol. i. p. 239.—Lindley, Synopsis, p. 191.—*Antirrhinum Linaria*, Linn.—English Botany, t. 658.—English Flora, vol. iii. p. 134.

Root with somewhat creeping branches. *Stem* erect, from one to two feet high or more, round, smooth, glaucous. *Leaves* linear lanceolate, acute, three ribbed, paler beneath, the lower ones somewhat tapering into a footstalk, numerous, crowded, irregularly arising on the stem. *Inflorescence* a terminal crowded many flowered raceme, the common stalk and pedicles scattered over with short glandular hairs. *Bractæas* linear lanceolate. *Calyx* in five small oblong lanceolate segments. *Corolla* large, yellow, the tube wide, tapering at the base into an awl-shaped spur, the upper lip of two oblong recurved lobes, the lower of three unequal ovate reflexed ones, palate large, swollen, prominent, deep orange colour, hairy within. *Stamens* arising from the base of the corolla. *Filaments* awl-shaped. *Capsule* ovate, smooth. *Seeds* flat, orbicular, with a broad winged membranous pale margin, the centre rough and tuberculated.

Habitat.—Banks of hedges, borders of fields, &c. ; common.

Perennial ; flowering in June and July.

This is a variable plant in its size, having the stem simple, wand-like, or more or less branched and bushy. Sometimes a remarkable variety is found having all the flowers in five regular parts, five spurs, a five-cleft limb, and the palate formed into a cup, stamens five, mostly abortive. The whole flowers of a plant thus formed are rare; but plants with one or two flowers this form and others of the usual shape are not rare. Linnæus called this variety *Peloria*, (Fig. 999.)

The leaves have a bitterish taste, and when bruised, a faint smell, resembling elder leaves. They are said to possess diuretic and cathartic properties, and have been used, it is said, with advantage in dropsical affections and jaundice; and as an external application, especially in hæmorrhoidal affections, they have had a high reputation, especially in Germany. Both the leaves and flowers are used in the form of poultice, fomentation, and ointment. Dr. Wolph is said to have been the inventor of the ointment, and used it with the greatest success in the cure of hæmorrhoids; and it is related that the Landgrave of Hesse, to whom he was physician, was extremely desirous of knowing its composition, but the Doctor obstinately refused: at length the Prince promised to give him a fat ox annually if he would tell. This liberal offer the worthy Doctor could not refuse, hence to the following words which were composed to distinguish the linear from the escula:—

“*Esula lactescit, sine lacte linaria crescit.*”

The hereditary Marshal of Hesse added—

“*Esula nil nobis, sed dat linaria taurum.*”

A decoction of the flowers has been recommended as useful in some diseases of the skin, and from the acrid properties which they possess

it may be useful. In Sweden the plant boiled in milk is used for the purpose of destroying flies.

6. *L. minor*, Desf. (Fig. 1000.) *least Toadflax*. Downy, glandulous; stem erect, much branched; leaves lanceolate, obtuse, petiolated, mostly alternate; racemes terminal lax; calyx of oblong segments, longer than the spur, but much shorter than the slender pedicle; seeds ovate, furrowed.

Hooker, British Flora, ed. 4. vol. i. p. 239.—Lindley, Synopsis, p. 192.—*Antirrhinum minor*, Linn.—English Botany, t. 2014.—English Flora, vol. iii. p. 135.

Root slender, fibrous. *Stem* erect, from one to about twelve inches high, slender, mostly much branched and bushy, clothed with soft glandular down. *Leaves* linear lanceolate, obtuse, tapering into a footstalk, downy, the lower opposite, somewhat ovate, the upper alternate. *Inflorescence* terminal lax racemes, of more or less numerous flowers, each arising from the axis of slender *bracteas* or floral leaves. *Pedicle* slender, often an inch long, always much longer than the *calyx*, which is five-cleft, the segments linear, hairy. *Corolla* small, purple, the tube short, elongated into a short obtuse spur, the upper lip short, of two spreading lobes, the lower white, of three unequal reflexed ones, the palate prominent, downy, yellow. *Capsules* large for the size of the plant, ovate, obtuse, slightly downy. *Seeds* numerous, ovate, brown, numerous furrowed.

Habitat.—Sandy corn fields, especially in the Midland and Southern Counties of England; rare in Scotland, and only about Glasgow; said to have been found at Sundayswell, Ireland.

Annual; flowering in June and July.

This is an extremely variable plant in its size, and is found sometimes with a simple stem, but mostly much branched and bushy; its flowers are small, but delicately formed and very beautiful. A species is found growing on the sandy waste places by the sea in some parts of the Continent, *L. littoralis*, Bernhard. It is nearly allied to *L. minor*, from which it is distinguished by its pedicles not being longer than the calyx segments, and the lobes of the upper lip close, not spreading. It is not improbable that the same species may be found on the Southern coast of England, but overlooked as *L. minor*.

GENUS XXXII. DIGITALIS.—LINN. *Fox-glove*.

Nat. Ord. SCROPHULARIACEÆ. LIND.

GEN. CHAR. *Calyx* in five unequal segments. *Corolla* campanulate, the limb oblique, of four or five unequal lobes, the upper one emarginate. *Stamens* inserted into the base of the corolla.



1002

Digitalis purpurea.



1003

Linnaea borealis.



1004

Verbena officinalis.

Capsule ovate, of two cells, two valved, with the margins inflexed.

—Name from *Digitale*, the *finger of a glove*; which its flowers resemble.

1. *D. purpurea*, Linn. (Fig. 1002.) *purple Fox-glove*. Leaves ovate lanceolate, crenate, the lower ones petiolated beneath, and the pedicles tomentose; calyx with ovate acute segments; corolla large, campanulate, smooth externally, the upper lip obtuse, slightly notched, the lower broad, ovate, rounded, entire.

English Botany, t. 1297.—English Flora, vol. iii. p. 141.—Hooker, British Flora, ed. 4. vol. i. p. 240.—Lindley, Synopsis, p. 192.

Root of numerous long branched fibres. *Stem* erect, from three to four feet high, simple, slightly angular, clothed with soft close pubescence. *Leaves* large, alternate, ovate lanceolate, rugose, with prominent netted veins, clothed especially beneath with soft close pressed woolliness, the margins crenated, the lower leaves tapering into somewhat winged footstalks, the upper with an attenuated point, sessile. *Inflorescence* a terminal raceme, the *flowers* numerous, large, purple, drooping, sometimes pure white or spotted. *Bractees* lanceolate, shorter than the round slender downy *pedicle*, drooping, in flower becoming erect. *Calyx* in five ovate acute three ribbed pubescent segments. *Corolla* large, bell-shaped, obtuse, smooth externally, of a fine deep purple, within downy, and scattered over with dark purple spots, with a white border, the mouth oblique, the upper lip very narrow, obtuse, slightly notched, the lower longer, broadly ovate, entire, rounded. *Stamens* arising from the base of the corolla, the *filaments* linear, smooth, bent at the base. *Anthers* of two spreading lobes. *Style* thread-shaped, as long as the stamens. *Stigma* cleft. *Capsules* ovate, acutely pointed, smooth. *Seeds* very numerous, small, angular.

Habitat.—Waste and cultivated places in a sandy or stony soil; frequent, especially in subalpine districts.

Biennial; flowering in June and July.

Fox-glove is perhaps the most beautiful and stately looking of all our herbaceous plants; it flourishes equally well under cultivation, and many extremely beautiful coloured varieties are obtained. Its use, however, is not only that of a beautiful showy flower, but its leaves possess most valuable medicinal properties which are diuretic and sedative; for medical use the leaves only are the parts used, and these should be gathered dry, and the best and most vigorous leaves selected when the plant begins to flower, and they should be dried separately, hung up in a warm shady place, and when perfectly dry, the thin parts of the leaf alone should be powdered, and then kept in close stoppered dark coloured bottles, and enveloped in paper to exclude the light. Besides this form of preparation the leaves are made into tincture and extract; but the powder renewed every year is the best and most efficacious. It is a remarkable property of this plant, that

by oft repeated doses it accumulates in the system without producing any apparent effect: when perhaps after its administration has been discontinued it produces constitutional symptoms which are nausea vomiting, giddiness, restlessness and a sensation of general heat in the body, want of sleep, general depression, sometimes diarrhœa or salivation, and profuse perspiration, and the more urgent symptoms of delirium, general convulsions, and insensibility follow; the pupil is dilated, the pulse slow and irregular, a perfect state of coma comes on, and death terminates the scene in a few weeks, or perhaps hours. Such are the general symptoms and effects of *Digitalis* if incautiously administered or accidentally taken; but in the hand of the careful physician it is one of the most valuable of our medicines in diminishing the action of the heart; hence its value in certain stages of consumption, diseases of the heart and inflammatory disorders, and almost all affections attended with increased vascular action, active hæmorrhages, and some cases of mania. Its use as a diuretic is also now well established, and for its introduction to notice we are indebted to Dr. Withering, who found it of the greatest use in certain stages of dropsical affections; but in these cases also it requires the same cautious administration, and the disease to be in a particular stage before its use will be advantageous.

The active properties of *Digitalis* appear to reside in a peculiar alkaline salt, which has been named by Le Royer *Digitalina*. It is soluble in water, alcohol, and ether. It exerts the same poisonous action on the animal economy as the plant itself. From experiments which have been made upon animals, it was found that from one half to a grain and half of the *Digitaline* injected into their veins caused speedy death without convulsions, but producing the same effect upon the pulse as characterises the administration of *Digitalis*.

The chemical investigation of vegetable productions is extremely difficult, from the great number of their component parts. *Digitalis* has been lately analyzed by Welding, and he obtained

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|--|------------------------------|
| 1. Gallic acid. | 7. Volatile oil. |
| 2. Mucus. | 8. A fixed floccy substance. |
| 3. Red colouring matter soluble in water, but not in ether or alcohol. | 9. Gum. |
| 4. Chlorophylle. | 10. A fatty substance. |
| 5. Sugar. | 11. Extractive. |
| 6. Starch, a trace. | 12. Digitaline. |
| | 13. Lignine. |

GENUS XXXIII. SIBTHORPIA.—LINN. *Sibthorpia*.

Nat. Ord. SCROPHULARIACEÆ. LIND.

GEN. CHAR. *Calyx* in five deep spreading segments. *Corolla* rotate, five-cleft, two lower segments narrowest. *Capsule* sub-orbicular, compressed, two celled, two valved.—Name given by Linnæus in

honour of *Dr. Humphrey Sibthorpe*, the successor of Dillenius to the botanical chair at Oxford.

1. *S. Europ'æa*, Linn. (Fig. 1001.) *creeping Sibthorpia*, or *Cornish Moneywort*.

English Botany, t. 649.—English Flora, vol. iii. p. 144.—Hooker, British Flora, ed. 4. vol. i. p. 240.—Lindley, Synopsis, p. 192.

Root of very slender branched fibres. *Stems* numerous, thread-shaped, branched, creeping and rooting, hairy, very slender and delicate. *Leaves* numerous, alternate, petiolated, roundish, kidney-shaped, broadly crenated, a light green, paler beneath, somewhat succulent, and scattered over with short hairs. *Inflorescence* small axillary solitary flowers, elevated on a short *pedicle*. *Calyx* with five deep lanceolate acute spreading segments, hairy. *Corolla* about as long as the calyx, the tube very short, the limb of five deep segments, spreading, the three upper largest, pinkish, the two lower smaller and white. *Stamens* nearly equal, the *filaments* awl-shaped, shorter than the corolla. *Anthers* of two round lobes. *Style* as long as the stamens. *Stigma* obtuse. *Capsule* sub-orbicular, compressed, notched at the apex. *Seeds* few, small, ovate.

Habitat.—Moist shady banks in Devonshire, Cornwall, near Nettlecombe, Somerset, Jersey, Guernsey, and the Scilly Isles, Conner-hill, near Dingle, Ireland.

Perennial; flowering in July and August.

This is the only known species of the genus, and is an extremely pretty graceful creeping little plant, growing upon wet banks, the sides of springs, and the borders of rivulets. Its flowers are very small and delicate, and its corolla has much the shape of the *Veronicas*, and is of the same habit of some of the species of that genus. We have found it abundant in Portugal, and occasionally in Italy.

GENUS XXXIV. LINN'ÆA.—GRONOV. *Linnæa*.

- Nat. Ord. CAPRIFOLIA'CEÆ. JUSS.

GEN. CHAR. *Calyx* five-cleft, superior, nearly equal. *Corolla* campanulate, five-cleft, equal. *Style* bent. *Stigma* globose. *Fruit* a dry three celled *berry*, each cell with a single pendulous *seed*. *Involucre* of from three to four pieces beneath the germen.—Name in honour of *Linnæus*.

1. *L. bore'alis*, Gronov. (Fig. 1003.) *two-flowered Linnæa*.

English Botany, t. 433.—English Flora, vol. iii. p. 143.—Hooker, British Flora, ed. 4. vol. i. p. 240.—Lindley, Synopsis, p. 132.

Root of slender branched fibres. *Stems* trailing, round, slender, smooth, filiform, branched, and rooting from the axis of the leaves, the young branches somewhat hairy. *Leaves* opposite, rather distant

roundish ovate, as long again as the footstalk, slightly crenated towards the end, smooth, or slightly hairy, a bright green above, paler beneath. *Inflorescence* an erect slender branch, cloven at the top, and bearing on each branch an elegant pendulous flower, smooth below, downy and glandular above. *Bracteas* two small narrow scales, from between which the short slender *pedicel* droops. *Involucre* of from two to five small ovate hairy scales, close below the germen. *Calyx* in five equal narrow lanceolate erect segments, downy. *Corolla* bell-shaped, the tube narrow, cylindrical at the base, gradually dilated upwards, a delicate yellowish pink, the limb in five acute lanceolate segments, about one-fourth the depth of the tube. *Stamens* with awl-shaped *filaments* inserted into the base of the corolla, two longer than the others. *Anthers* oblong, two celled, yellow. *Style* longer than the corolla. *Stigma* obtuse. *Fruit* a dry membranous three celled *berry*, one cell usually fertile, the others abortive. *Seed* ovate oblong, pendulous.

Habitat.—Woods, especially of fir; less frequent in open situations in various parts of Scotland, not unfrequent, on the Clove mountains and banks of the Esk, at Dalhousie. The only known station for it in England was discovered by *Miss E. Trevelyan* in a plantation of Scotch firs, at Catcherside, in the parish of Hartburn, Northumberland. Perennial; flowering in May and June.

This extremely pretty and elegant little plant is rendered interesting to all botanists, from the name of the immortal Linnæus, which it transmits to posterity. He named it himself, and seems to have traced a resemblance between the history of this "little northern plant, long overlooked, depressed, abject, flowering early," and his own early blooming but long neglected career, and wandering, depressed by necessity, and almost without hope, at length attained the notice of the learned and the wise, and has transmitted an honoured name to posterity, never to be forgotten as long as flowers, which are gems in the poetry of nature, shall be studied either by the scientific student of nature, or the cultivator of flowers, for their own beauty's sake.

GENUS XXXV. VERBE'NA.—LINN. *Vervain*.

Nat. Ord. VERBENA'CEÆ: JUSS.

GEN. CHAR. *Calyx* tubular, five-cleft, mostly unequal. *Corolla* tubular, with a spreading sublobate five-cleft limb. *Stamens* included, (sometimes by abortion only two). *Fruit* four nuts.—Name *ferfaen* in Celtic, derived from *fer*, to drive away; and *faen*, a stone, from having been supposed to cure the complaint so called.—*Théis*.

1. *V. officinalis*, Linn. (Fig. 1004.) *Common Vervain*. Spikes filiform, paniculated; stamens four; leaves ovate oblong, rough, deeply cut and serrated, or trifid and cut, the petiole winged.

English Botany, t. 767.—English Flora, vol. iii. p. 72.—Hooker, British Flora, ed. 4. vol. i. p. 240.—Lindley, Synopsis, p. 196.

Root woody, with branched fibres. *Stem* erect, from one to two feet high, simple or branched, square, striated, more or less rough, with short hairs. *Leaves* opposite, oblong, ovate, cut, and obtusely serrated, often trifid, and the lobes also cut and serrated, the footstalk broadly winged, dark green above, paler beneath, with prominent veins, rough, with short hairs, smoother above. *Inflorescence* terminal spikes of lax flowers, somewhat paniculated, on rough slender branches, elongated after flowering. *Bractees* small lanceolate scales. *Calyx* tubular, five angled, rough, somewhat unequally five-cleft, with short obtuse points. *Corolla* pale lilac, the tube slender below, dilated upwards, as long again as the calyx, the limb in five spreading rounded somewhat unequal lobes. *Stamens* four, inclosed within the tube. *Anthers* small, two lobed. *Style* slender. *Stigma* obtuse. *Fruit* a four seeded thin membranous evanescent capsule leaving the oblong seeds, furrowed at the back and brown, in front a pale disk, rough, and surrounded with an elevated border.

Habitat.—Road sides and waste places; frequent in England, rare in Ireland, and at Iverkeithing, Scotland.

Perennial; flowering in July.

Vervain was formerly called *Herba Sacra*, which has arisen from its having been used in the sacred ceremonies, &c. of the ancients. It is said that the worshippers of the sun hold branches of Vervain in their hands during the time they are performing their sacred services; and in Virgil's Pastoral, 8, 89, it is said—

“Bring running water: bind those altars round
With fillets, and with *vervain* strew the ground.”

The Druids held Vervain in great veneration, and before they dared to gather it, made sacrifice to the earth in which it grew; and Pliny says they used it in casting lots, in drawing omens, and other magical arts: and according to Dryden they used it as food.

“Some scattering pot-herbs here and there he found,
Which, cultivated with his daily care,
And bruised with *vervain*, were his daily fare.”

Vervain was also said to possess numberless virtues both in the cure of diseases, when taken as a medicine, or worn about the neck as an amulet; and when the Romans despatched their heralds at arms to declare war, or proclaim peace to other nations, they wore a wreath of Vervain. Drayton, in his Elysium of the Muses, in allusion to this practice, says—

“A wreath of *vervain* heralds wear,
Amongst our garlands named,

Being sent that dreadful news to bear,
Offensive war proclaimed."

And further, in allusion to its being used by the dark workers of witchcraft, he says—

"The night-shade strows to work him ill,
Therewith the *vervain* and her dill,
That hindereth witches of their will."

From these ancient uses of the plant it has been with good reason selected in the language of flowers as the emblematic sign of enchantment. The potential virtues said to have been found in this plant are not confirmed by modern usages and investigations: it is neither possessed of powers of enchantment, nor of valuable medicinal properties; consequently it is entirely neglected.

CLASS XV.

TETRADYNA'MIA. (*Six Stamens, four long
and two short.*)

ORDER I.

SILICULOSA.—*Fruit a short pod or pouch.*

GENUS I. CRAM'BE.—LINN. *Kale.*

Nat. Ord. CRUCIFERÆ.* JUSS.

GEN. CHAR. *Silicula* two jointed, indehiscent, one celled, the lower joint abortive, resembling a pedicle, the upper globose, one seeded. *Seeds* round, pendulous, from the end of the long filiform curved

* This is one of the most natural and uniform orders of plants that are known, as well as one of the most extensive. It is called *Cruciferae*, or *Cross bearing plants*, from the corolla being formed of four petals, disposed in a cross-like form; but as there are other orders of plants having the same cruciform disposition of their petals, as *Capparidaceae*, *Papavariceae*, &c., it has been proposed to call this order *Brassicaceae*, from the well-known genus *Brassica*.

The *Cruciferae*, or *Brassicaceae*, are herbaceous plants, (rarely becoming suffruticose), annual, biennial, or perennial, with round or irregular angular stems, the leaves alternate, simple, cut, rarely truly compound, and without stipules. The flowers are regular, white or yellow, rarely red or purple. The *calyx* is formed of four sepals, free, and set crosswise, the outer ones are (mostly narrowest) opposite the placenta; the two inner ones are opposite the valves of the fruit, and mostly gibbous or spurred at the base: *Petals* four, with long narrow claws, the limb mostly equal, sometimes abortive. *Stamens* six, two of which are opposite the valvular sepals, and are shorter than the other four, which



1005

Crambe maritima.



1006

Cakile maritima.



1007

Isatis tinctoria.



1008

Senebiera coronopus.



1009

Senebiera didyma.



1010

Lepidium latifolium.

funiculus. *Cotyledons* thick, conduplicate, deeply emarginate.—(c Fig. 3. page 872.)—Name from *κεαμβη*, of the Greeks.

1. *C. mariti'ma*, Linn. (Fig. 1005.) *Sea Kale*. Longer filaments toothed; silicules pointless; leaves roundish, sinuated, waved and toothed, glaucous, and as well as the stem smooth.

English Botany, t. 924.—English Flora, vol. iii. p. 184.—Hooker, British Flora, ed. 4. vol. i. p. 246.—Lindley, Synopsis, p. 34.

Root large, thick, fleshy, much divided towards the top. *Stems* mostly several, from one to two feet high, round, smooth, branched,

are in pairs opposite the placental sepals, the *filaments* are free, sometimes partly united or toothed on their inner sides. *Disk* small, sometimes supporting the germen, at others forming nectariferous glands between the petals, stamens, and germen. *Germen* formed of two or four united carpels, with parietal placenta, mostly meeting in the middle, and forming a spurious dissepiment, rendering it two celled, *ovules* one or many. The *style* is short when the germen is long, and long when the germen is short. *Stigmas* two, opposite the placenta. *Fruit* a one or spuriously two celled siliqua. *Seeds* one, two, or many, mostly pendulous, in a single row on each side of the placenta; they are without *albumen*, and the *testa* is thickish, subcoriaceous, the *embryo* is curved, the *radicle* round or subconical, and turned towards the hilum; the cotyledons are variously folded on the radical, and are foliaceous in germination.

According to De Candolle *Regni Vegetabilis*, v. 2, p. 143, the species distributed geographically, exclusive of those that are uncertain or common to several different countries, about 100 are found in the southern hemisphere, and about 800 in the northern, or 91 in the new, and the rest in the old world; or according to their distribution with regard to temperature they are—

In the frigid zone of the northern hemisphere..... 205

In all the tropical, and chiefly in mountainous regions 30

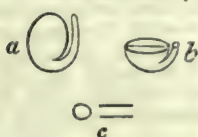
In the temperate zone { of the northern hemisphere... 548 } 634
 { of the southern hemisphere ... 86 }

These calculations serve to give a general idea (though probably far from a correct one) of the manner in which the order is distributed over the different regions of the globe.

According to the Linnæan system, the genera of this order are subdivided into two—the *Siliquosa* and the *Siliculosa*—which is sufficiently convenient for a small number of plants, but not for the number of 138 genera that are now known, and more recent divisions have been established upon the difference in the doubling of the cotyledons, and the position of the radicle with respect to them.

The cotyledons are, for the most part, two in number, and when the radicle is curved up and lies upon the edges of both of them, they are said to be *accumbent*; but when the radicle is curved up and lies upon the side of one of the cotyledons, they are said to be *incumbent*. The sub-orders which have been established upon this principle are—

1. *PLEURORHIZÆ*. (Fig. 1.) *a* Cotyledons flat, with an accumbent radicle,



seeds compressed; *b* a transverse section of the same, to show the radicle lying upon the edges of the two cotyledons; *c* the symbol by which this seed is indicated, the ring indicating the section of the radicle and the two lines, the relative position of the cotyledons.

glaucous, and somewhat succulent. *Leaves* alternate, large, a pale glaucous green, of a somewhat leathery texture, stalked, the lower ones somewhat lyrate, the upper roundish, waved, sinuated and toothed on the margin. *Inflorescence* a terminal panicle, large, of numerous crowded white flowers. *Calyx* of oblong concave spreading segments, nearly equal at the base. *Corolla* of four equal petals, the limb large, roundish, notched, spreading, longer than the claw. *Stamens* with awl-shaped *filaments*, each with a gland at the base, the four longer

2. NOTORHIZÆE. (Fig. 2.) *a* Cotyledons flat, with an incumbent radicle, seeds ovate or oblong, not margined; *b* a transverse section of the same, showing the radicle lying upon the back of the cotyledon; *c* the symbol indicating the radicle and the two lines, the cotyledons with the sides applied to the radicle.



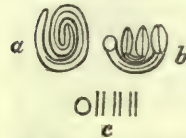
3. ORTHOPLOCEÆ. (Fig. 3.) *a* Cotyledons folded together, or plaited lengthwise through the middle, and enwrapping the incumbent radicle, seeds mostly globose, never margined; *b* a transverse section of the same, showing the folded cotyledons apped to the radicle; *c* the symbol indicating the radicle, and the curved cotyledons enwrapping it.



4. SPIROLOBEÆ. (Fig. 4.) *a* Cotyledons linear, circinnate, or spirally folded, the radicle incumbent, seeds sub-globose; *b* a transverse section, showing the radicle, and the folds of the cotyledons twice cut through; *c* the symbol indicating the radicle, and the two pairs of parallel lines the double folds of the cotyledons.



5. DIPLECOLOBEÆ. (Fig. 5.) *a* Cotyledons linear, twice bent, or doubly folded, the radicle incumbent, seeds depressed; *b* a transverse section, showing the radicle, and the folds of the cotyledons three times cut through; *c* the symbol indicating the radicle, and the three pairs of parallel lines the folds of the cotyledons.



6. SCHIZOPETALIDÆ. Cotyledons four, spirally twisted.

The general character of the properties of this order are antiscorbutic, and stimulating, combined with a greater or less degree of acidity, and it may be here observed that when the stimulating qualities of the plant are dispersed or combined with a large proportion of mucilage, and the farinaceous or cellular substance of the plant, that they form wholesome and nutritious food; but when these properties are concentrated, as in the seed of the mustard, the root of the horse radish, &c., it is too powerfully stimulating, and can only be used as a condiment in food, or for medicinal purposes. Many of the species are cultivated, and rank among our common and most useful vegetables; and the seeds of some produce valuable fixed oil, &c., as will be seen by the details of this important order of plants.

ones mostly with a lateral tooth near the top. *Anthers* oblong, two celled, yellow. *Style* very short. *Stigma* obtuse. *Fruit* a silicula, of two cells and two joints, never opening with valves, the upper cell globose, single seeded, the lower cell abortive, contracted into a stalk. *Seed* globose, large.

Habitat.—Sandy or stony places in various parts of the sea coast, but not common.

Perennial; flowering in May and June.

From the very imperfect knowledge which the ancients appear to have had in distinguishing one tribe of plants from another, we are not able always to know whether or not many vegetables now known, are those which were called by the same name by them: thus in the history of the *κράμβη*, *colewort*, which we now limit to the present genus, was formerly applied also to the genus *Brassica*. It appears to have been a custom amongst the ancient Grecians on the fifth day after the birth of a child, that the midwives having first purified themselves by washing their hands, ran round the fire-hearth with the infant in their arms, thereby, as it were, entered into the family, and putting it under the protection of the household gods, to whom the hearth served instead of an altar; hence this day or festival was called *Ἀμφιδρομία*. It was celebrated as a festival, with great expressions of joy; they received gifts from their friends—if the child was a male, their doors were decked with an olive garland.

“The sign of peace who first displays
The olive wreath possesses.”

If a female, with wool; in token of the work in which women were usually employed. The cheer consisted of different sorts of things, among which *κράμβη*, *colewort*, was always one, which the Athenian midwives used to administer to women in childbed, as conducing to create milk. Ephippus thus describes the ceremony—

“But what’s the reason that no crown is plac’d
Before the doors, nor grateful victim slain,
Whose frying fat delights the smelling sense,
When joyful *Amphidromia* are kept;
In which is toasted *Chersonesian* cheese,
And *colewort* tied in bundles, seeth’d in oil,
And linnets, doves, thrushes, and cuttle fish,
And calamary dress’d and eat in common,
And polypus’s claws with care procured,
To drink ’em down amidst their less mix’d cups?”

For further particulars of these ancient ceremonies, in which it will be seen some of their remains are still amongst us, see *Potter’s Grecian Antiquities*.

From a very early period the young shoots of *Crambe maritima* have been used as a vegetable, when in a young and tender state, by the natives of our sea coasts, and cooked for use in a similar way as asparagus. It has not, however, been long cultivated in our gardens,

generally as it now is, not more perhaps than twenty years; it is hardy, and easy of cultivation, is earlier than asparagus, and by many persons considered equally as good. It is forced by planting the roots in a hot-bed, or a warm shaded border, and surrounded by an earthen pot perforated with holes, or a wicker basket, and then covered over with warm litter for protection from the cold, and to ensure its being blanched by exclusion from the light. The flowers of the full grown plant are a favourite resort of bees.

GENUS II. CAKILE.—GÆRT. *Sea-Rocket*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Silicula* two jointed, angular, indehiscent, one celled, one seeded, the lower joint obovate, the upper compressed, crowned by the sessile stigma. *Seed* solitary in each cell, the lower one pendulous, the upper erect. *Cotyledons* linear, acuminate.—(c Fig. 1, page 871).—Name an old Arabic word.

1. *C. maritima*, Willd. (Fig. 1006.) *Purple Sea-Rocket*. *Silicula* with the joints two edged, the upper two toothed at the base; leaves fleshy, pinnatifid.

English Botany, t. 231.—English Flora, vol. iii. p. 183.—Hooker, British Flora, ed. 4. vol. i. p. 245.—Lindley, Synopsis, p. 28.

β. integrifolia. Leaves oblong, ovate, obtusely toothed.

C. ægyptiaca, Willd.

Root small, fibrous. *Stems* numerous, much branched, spreading, zigzag, bushy, fleshy, from one to nearly two feet high. *Leaves* numerous, alternate, thick, fleshy, succulent, of a pale glaucous green, having a slight bitter saltish taste, oblong, pinnatifid, with obtuse segments; in *β.* they are entire, ovate, or oblong, petiolated, obtusely and irregularly toothed. *Inflorescence* an elongated spike. *Flowers* rather large, of a bright lilac colour, crowded at the end of the flowering branches. *Calyx* oblong, ovate, of narrow segments, the two outer ones somewhat swollen at the base. *Corolla* of four petals, the claw narrow, as long as the calyx, the limb obovate, obtuse, spreading. *Stamens* with simple awl-shaped *filaments* and yellow oblong *anthers*. *Stigma* sessile, obtuse. *Fruit* an angular two jointed *silicula*, the upper compressed into an angular sword-shape, with a tooth on each side at the base, one celled, single seeded, the lower joint smaller, nearly cylindrical, and mostly abortive, the whole pod is at first fleshy, becoming hard and woody, the joints separating, but the cells remain closed.

Habitat.—Waste sandy places on the sea coast; frequent.

Perennial; flowering in June and July.

This plant, as well as others of the same genus, have been recommended as a diuretic and antiscorbutic, and the *C. maritima* is said to

possess strong cathartic properties; but it does not appear to have been applied to any particular use or esteemed amongst us of any value either medicinally or otherwise.

GENUS III. ISA'TIS,—LINN. *Woad*.

Nat. Ord. CRUCIF'ERÆ. JUSS.

GEN CHAR. *Silicula* oblong, laterally compressed, one celled, of two keeled valves, one seeded. *Seeds* with the cotyledons incumbent.—(c Fig. 2, page 872)—Name *ισαρις*, of the Greeks.

1. *I. tinctoria*, Linn. (Fig. 1007.) *Dyer's Woad*. *Silicula* oblong, obtuse, or emarginated, tapering to the base; radicle leaves oblong, crenate, petiolate, those of the stem sessile, sagittate, entire.

English Botany, t. 97.—English Flora, vol. iii. p. 182.—Hooker, British Flora, ed. 4. vol. i. p. 246.—Lindley, Synopsis, p. 32.

Root tapering. *Stem* erect, from two to three feet high, simple, leafy, a glaucous green, smooth. *Leaves* numerous, smooth, a glaucous green, paler beneath the radical ones, large, oblong, ovate, petiolated, crenated or waved on the margin, those of the stem sessile, entire, with two lanceolate arrow-shaped lobes at the base. *Inflorescence* a terminal panicle, of numerous divided branches, with a bracteated leaf at the base of each. *Flowers* numerous, yellow, in crowded racemes. *Calyx* of four ovate equal concave spreading deciduous pieces, yellow. *Corolla* of four equal obovate spreading petals, tapering at the base into a short claw. *Stamens* with simple *filaments* and small roundish yellow *anthers*. *Stigmas* sessile, capitate. *Fruit* an oblong obtuse or emarginated *silicula*, tapering towards the base, pendulous, smooth and shining, almost black, one celled, two valved, keeled. *Seed* solitary, pendulous from the top of the cell.

Habitat.—Cultivated fields about Ely, Durham, Leicester, &c., but rare.

Biennial; flowering in July.

Woad appears from a very early period to have been used as a dye; according to Pliny, the Greeks and Romans used it; and he says also that the ancient Britons used it for painting their bodies. The leaves afford, when fermented, a blue colouring matter, the same as indigo, but in a much smaller proportion than the leaves of the Indigoferæ plants, which are grown in the greatest abundance and success in the East and West Indies, where they form an important article of export; and on account of the plants producing so much greater a proportion of colouring matter than the Woad, as well as being grown at so much less expense, their cultivation in England is entirely given up. Woad was formerly a plant of considerable commercial importance, and was cultivated in many parts of the country, especially in Somerset-

shire; *Glastonbury* received its name from *Glastum*, which was the old name of the plant.

The introduction of Indigo into Europe as a dye was not effected without difficulty, and the growers of Woad prevailed upon several Governments to prohibit its being used, especially in Germany, and it is not until within a very late period that its use has been allowed without restrictions.

GENUS IV. SENEBIERA.—POIR. *Wart-cress*.

Nat. Ord. CRUCIFERÆ: JUSS.

GEN. CHAR. *Silicula* two lobed, (didyma), laterally compressed, entire or notched at the apex, two celled, each cell single seeded. *Seeds* roundish, with linear incumbent cotyledons.—(c Fig. 2, page 872.)—Named in honour of the Rev. M. Senebier, of Geneva, a distinguished physiological botanist.

1. *S. Coronopus*, Poir. (Fig. 1008.) *Common Wart-cress*, or *Swine's-cress*. Leaves pinnatifid, with entire or cut lobes; silicula sub-reniform, compressed, the valves wrinkled, the margin striated and toothed; style prominent.

De Candolle Prod. 1. p. 203.—English Flora, vol. iii. p. 179.—*Coronopus Ruelli*.—English Botany, t. 1660.—Lindley, Synopsis, p. 30.—Hooker, British Flora, ed. 4. vol. i. p. 246.

Root long, tapering, branched. *Stems* numerous, branched, spreading, close to the ground, leafy, smooth, compressed, and somewhat angular. *Leaves* alternate, a glaucous green, deeply pinnatifid, with entire or cut segments, the petiole long, flat, smooth. *Inflorescence* stalked, sub-corymbose, clusters of numerous small white flowers. *Calyx* of four small equal ovate concave spreading deciduous pieces. *Corolla* of four equal obovate or oblong white or greenish petals. *Stamens* with simple filaments and roundish two lobed anthers, frequently some of the stamens are wanting. *Style* short, stout, conical. *Stigmas* obtuse. *Fruit* an ovate or sub-reniform silicula, of two spreading lobes, rough, with elevated reticulated lines, striated towards the margin, and toothed on the edge, two celled, each cell containing a compressed pendulous seed.

Habitat.—Footpaths and road sides, not unfrequent in England and Ireland; rare in Scotland, and found chiefly about Edinburgh.

Annual; flowering in September and October.

2. *S. didyma*, Persoon. (Fig. 1009.) *Lesser Wart-cress*. Leaves pinnatifid, with entire or cut lobes; silicula emarginate, of two compressed wrinkled lobes; style very short.

English Flora, vol. iii. p. 180.—*S. pinnatifida*, De Cand. Prod. 1. p. 203.—*Lepidium didymum*, Linn.—English Botany, t. 248.—

Coronopus didyma, Sm.—Hooker, British Flora, ed. 4. vol. i. p. 246.—Lindley, Synopsis, p. 31.

Root small, fibrous. *Stems* numerous, slender, round, hairy, procumbent, much branched and leafy. *Leaves* alternate, smooth, pinatifid, with entire toothed or cut segments. *Inflorescence* slender, spikes of numerous small white flowers, mostly opposite to the leaves, and as long or longer than the leaves. *Calyx* of four small ovate spreading deciduous pieces. *Corolla* of four equal ovate or roundish spreading whitish petals. *Stamens* with simple filaments, two or four, rarely six. *Fruit* a two lobed silicula, roundish, compressed, wrinkled, deeply notched at both ends. *Stigma* small, sessile between the lobes, two celled, each cell with a single compressed pendulous seed.

Habitat.—Waste places near the sea; about Exeter, Truro, Penryn, Milford-haven, near Cærnarvon, and shores South of Ireland.

Annual; flowering in July.

GENUS V. LEPID'IUM.—LINN. *Pepper-wort*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Silicula* ovate or sub-cordate, of two one seeded cells, valves keeled or winged at the back. *Petals* equal. *Filaments* simple. *Seeds* sub-compressed. *Cotyledons* plane, incumbent.—(c Fig. 2, page 872.)—Name from *λεπίς*, a *scale*; so called from the scale-like form of the silicules.

1. *L. latifolium*, Linn. (Fig. 1010.) *Broad leaved Pepper-wort*. Leaves ovate lanceolate, undivided, crenato-serrated, the radical ones ovate, obtuse, on a long footstalk; the silicules ovate, nearly entire, downy.

English Botany, t. 182.—English Flora, vol. iii. p. 165.—Hooker, British Flora, ed. 4. vol. i. p. 247.—Lindley, Synopsis, p. 31.

Root of numerous wide spreading branches. *Stem* erect, from three to four feet high, round, smooth, tough branched and leafy, glaucous green, pale. *Leaves* alternate, the lower ones large, ovate, obtusely lanceolate, on long footstalks, obtusely serrated from about the middle upwards, the upper lanceolate, sessile, a smooth glaucous green, paler beneath, having an unpleasant bitter pungent flavour. *Inflorescence* terminal and axillary, racemes of numerous crowded flowers, of a white or pinkish colour. *Calyx* of four roundish ovate concave deciduous pieces. *Corolla* of four small oblong ovate spreading petals. *Stamens* with simple filaments and small ovate two celled *anthers*. *Fruit* an ovate roundish silicula, slightly notched at the apex, and crowned by the sessile obtuse *stigma*, two celled, each cell containing a single pendulous seed.

Habitat.—Wet shady places near the sea, and in salt marshes; in Norfolk, Essex, and Yorkshire, England; Weems, Fifeshire, and Donibristle, Scotland; Cork-beg, near Cove, Ireland.

Perennial; flowering in July.

This is sometimes called *Poor Man's Pepper*, on account of the hot acrid flavour which it possesses. Its roots were once used as horse radish, and its leaves are occasionally used as a condiment. An infusion of its leaves is said by Withering to produce vomiting.

2. *L. Dra'ba*, Linn. (Fig. 1011.) *Whitlow Pepper-wort*. Leaves broadly oblong lanceolate, entire or toothed, the radical ones tapering into a footstalk, the upper sessile, arrow-shaped at the base; siliqua subcordate, two lobed, crowned by a style as long as the valves.

English Botany, t. 2683.—Hooker, *British Flora*, ed. 4. vol. i. p. 248.—Lindley, *Synopsis*, Suppl. p. 319.

Root tapering. *Stem* erect, solitary, about a foot high, slender, downy, branched at the top in a corymbose manner. *Leaves* pale green, downy, especially beneath, the radical ones ovate lanceolate, tapering into a broadish footstalk, the upper ones sessile, embracing the stem, oblong lanceolate, cordate at the base, and auriculated in an arrow-shaped manner, ribs stout, pale, the margins more or less toothed unequally. *Inflorescence* terminal sub-corymbose racemes of numerous white flowers, at first crowded. *Pedicles* slender, downy, nearly an inch long. *Calyx* of four equal ovate concave pieces, with a narrow white membranous margin. *Petals* obovate, white, the claws long, narrow. *Stamens* with simple *filaments* and yellow ovate two celled *anthers*. *Fruit* a sub-cordate silicula, somewhat two lobed, turgid, crowned by the persistent *style*, as long as the valve, two celled, each cell with a single pendulous brown *seed*, the *cotyledons* oblong, obtuse, thick.

Habitat.—Fields and hedges; rare. Swansea, St. Peter's and Ramsgate, Isle of Thanet, left bank of the Dee below Chester.

Perennial; flowering in June.

This is a doubtful native plant, but is common on the Continent in corn and other cultivated fields, and it is probable that from thence it has been introduced, and is now become naturalized.

3. *L. rudera'le*, Linn. (Fig. 1012.) *Narrow-leaved Pepperwort*. Lower leaves petiolated, pinnated, the upper sessile, linear, entire; flowers with two stamens, and without petals; siliqua roundish ovate, notched, spreading, shorter than the pedicles.

English Botany, t. 1595.—English *Flora*, vol. iii. p. 165.—Hooker, *British Flora*, ed. 4. vol. i. p. 248.—Lindley, *Synopsis*, p. 31.

Root tapering, slender, branched. *Stem* erect, from six to twelve inches high, round, slender, much branched, smooth and leafy. *Leaves* a glaucous green, smooth, the lower ones petiolated, pinnated, with entire or sometimes toothed segments, the upper ones linear, obtuse, entire, sessile. *Inflorescence* slender terminal and lateral racemes, becoming much elongated. *Flowers* very small, crowded at the ends of the branches. *Calyx* of four ovate concave pieces, with a



1011

Lepidium draba.



1012

Lepidium ruderalis.



1013

Lepidium campestre.



1014

Lepidium Smithii.



1015

Thlaspi arvense.



1016

Thlaspi perfoliatum.

white membranous margin. *Petals* mostly wanting, small, obovate, white. *Stamens* mostly two, sometimes four. *Fruit* a smooth roundish ovate siliqua, notched at the apex with the persistent short conical style between the lobes, which appears like a third tooth, two celled, each cell with a single brown ovate pendulous seed, with linear acute cotyledons.

Habitat.—Waste rubbishy places near the sea; not common.

Annual; flowering in June.

4. *L. campestre*, Brown. (Fig. 1013.) *Common Mithridate Pepperwort*, or *Cow Cress*. Leaves clothed with hoary pubescence, the lower oblong, entire, petiolated, the upper sessile, toothed, arrow-shaped, amplexicaul; siliqua rough, with depressed scales, ovate, notched; keel winged; style about as long as the notch.

English Botany, t. 1385.—English Flora, vol. iii. p. 166.—Hooker, British Flora, ed. 4. vol. i. p. 248.—Lindley, Synopsis, p. 31.

Root small, tapering, branched. *Stem* erect, about a foot high, simple, branched above, round, and like the rest of the plant clothed more or less thickly with close somewhat hoary pubescence. *Leaves* numerous, a hoary green, the lower entire, oblong ovate, tapering into a footstalk of greater or less length, the upper sessile, lanceolate, arrow-shaped, embracing the stem, the lobes lanceolate, the margin more or less waved and toothed. *Inflorescence* terminal and lateral many flowered paniculated racemes. *Flowers* small, white. *Calyx* of four equal oblong ovate pale segments. *Petals* four, scarcely longer than the calyx, obovate, tapering into a claw, white. *Fruit* an ovate siliqua, on a round slender slightly pubescent pedicel, swollen on the lower side, somewhat cupped above, the keel winged, the apex notched. *Style* slender, scarcely longer than the lobes of the notch, two celled, each cell containing a single pendulous dark brown ovate seed, the valves more or less rough, with minute depressed pale scales.

Habitat.—Cultivated fields; common.

Annual; flowering in July.

5. *L. Smith'ii*, Hooker. (Fig. 1014.) *Smooth fruited Field Pepperwort*. Leaves clothed with pubescence, the lower oblong, entire, petiolated, the upper sessile, arrow-shaped, toothed, amplexicaul; siliqua smooth, ovate, notched; keel winged; style much longer than the notch.

Hooker, British Flora, ed. 4. vol. i. p. 248.—Lindley, Synopsis, p. 31.—*L. hirtum*.—English Flora, vol. iii. p. 167.—*Thlaspi hirtum*, Linn.—English Botany, t. 1803.

Root tapering. *Stems* several, simple or branched, round, leafy, clothed with soft pubescence. *Leaves* a glaucous green, paler beneath, and clothed more or less thickly with soft pubescence, the lower ones oblong, entire, or unequally lobed or toothed, tapering into a long slender footstalk, the upper sessile, oblong lanceolate, with lanceolate

arrow-shaped lobes at the base, embracing the stem, unequally waved or toothed. *Inflorescence* terminal many flowered paniculated racemes. *Flowers* small, white. *Calyx* of four ovate equal pale segments, with a narrow white membranous margin. *Petals* white, ovate, small, with a slender claw. *Fruit* an ovate siliqua, on a round slender hairy pedicle, swollen on the lower side, somewhat cupped above, the keel winged, the apex notched. *Style* slender, much longer than the lobes of the notch, two celled, each cell containing a single pendulous dark brown ovate seed, the valves smooth, or sometimes rather rough, with a few depressed scales at the back.

Habitat.—Cultivated fields and under hedges. Norfolk, Suffolk, Nottinghamshire, Lincolnshire, frequent; common in Cærnarvonshire and Anglesea, and not uncommon in Scotland and Ireland.

Perennial; flowering in June.

This, though having the general appearance of the last species, is readily distinguished by its smooth fruit, and the slender style being much longer than the lobes of the notch. It, like all the other species of this genus, possesses warm stimulating properties; the *L. sativum* is well known as the common garden-cress, which in a young state with (*Sinapis*) mustard forms one of our earliest and most wholesome spring salads. By cultivation, several varieties are obtained, as the curled and broad leaved; the former is an elegant plant for the table; the latter is chiefly used for feeding turkies.

GENUS VI. THLASPI.—LINN. *Penny-cress*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Silicula* laterally compressed, the apex notched, of two or many seeded cells, *valves* keeled or winged at the back. *Calyx* equal at the base. *Petals* equal. *Filaments* simple. *Cotyledons* accumbent.—(c Fig. 1, page 871.—Name from *θλαω*, flattened or compressed; so called on account of the shape of the seeds.

1. *T. arven'se*, Linn. (Fig. 1015.) *Mithridate Mustard* or *Penny-cress*. Leaves oblong, smooth, toothed, those of the stem sessile, arrow-shaped at the base; silicula large, flat, with a broad winged keel; seeds numerous, circular, striated.

English Botany, t. 1659.—English Flora, vol. iii. p. 171.—Hooker, British Flora, ed. 4. vol. i. p. 246.—Lindley, Synopsis, p. 27.

Root small, tapering. *Stem* erect, about a foot high, branched above, leafy, smooth, a glaucous green. *Leaves* smooth, unequally toothed on the margin, the radical ones obovate, obtuse, the upper oblong lanceolate, arrow-shaped at the base, sessile, and embracing the stem. *Inflorescence* terminal and lateral elongated many flowered racemes, smooth. *Calyx* equal, ovate, concave, pale green. *Corolla*



1017

Thlaspi alpestre.



1018

Capsella Bursa pastoris.



1019

Hutchinsia patrea.



1020

Teesdalia nudicaulis.



1021

Iberis amara



1022

Konigia maritima.

of four equal white ovate petals, tapering into a claw. *Fruit* a large flat two celled siliqua, with a broad green winged keel, deeply notched at the apex, style short. *Seeds* about six in each cell, ovate, dark brown, somewhat rugose, and striated with circular furrows. *Pedicles* of the fruit slender, smooth, spreading, about as long again as the fruit.

Habitat.—Cultivated fields and waste places, but not common.

Annual; flowering in June and July.

The leaves, when bruised, have an alliaceous smell and warm pungent taste, qualities which caused its being used in the old Mithridate Confection, now completely expunged from the medical list; hence it has obtained its common name of Mithridate Mustard; and from the large circular form of the seed vessels it has been called *Penny-cress*. It is not now used either in medicine or for domestic purposes.

2. *T. perfolia'tum*, Linn. (Fig. 1016.) *Perfoliate Penny-cress*. Leaves smooth, slightly toothed, the radical ones ovate, obtuse, petiolated, the upper sessile, cordate, amplexicaul; siliqua obcordate; seeds smooth; style shorter than the lobes of the notch.

English Botany, t. 2354.—English Flora, vol. iii. p. 172.—Hooker, British Flora, ed. 4. vol. i. p. 246.—Lindley, Synopsis, p. 27.

Root small, fibrous. *Stem* erect, round, smooth, branched from the base, leafy, spreading. *Leaves* a smooth glaucous green, paler beneath, the margin slightly toothed, the radical leaves ovate, obtuse, petiolated, the upper ones sessile, oblong, ovate, with rounded lobes in a heart-shaped form at the base. *Inflorescence* elongated terminal and lateral racemes of numerous flowers. *Calyx* small, of four equal concave pieces, with a pale membranous margin. *Corolla* of four small white ovate petals. *Fruit* an obcordate smooth siliqua, the keel dilated, especially towards the apex, into rather large rounded lobes, having at the bottom of the notch the very short style, the cells three or four seeded, the seeds small, smooth, ovate, pale brown.

Habitat.—Limestone districts, rare; Burford and Upper Slaughter, Oxfordshire; Kineton, Gloucestershire.

Annual; flowering in May.

3. *T. alpes'tre*, Linn. (Fig. 1017.) *Alpine Penny-cress*. Leaves smooth, entire, or toothed, the radical ones tufted, ovate, obtuse, petiolated, the upper sessile, arrow-shaped, amplexicaul; siliqua triangular, obcordate; style longer than the lobes of the notch; seeds smooth.

English Botany, t. 81.—English Flora, vol. iii. p. 173.—Hooker, British Flora, ed. 4. vol. i. p. 247.—Lindley, Synopsis, p. 28.

Root small, tapering. *Stems* several, from six to twelve inches high, simple, leafy, round, smooth, and like the rest of the plant a pale glaucous green. *Leaves* waved, or slightly toothed or entire, the

radical ones tufted, ovate, obtuse, on a broadish footstalk, those of the stem sessile, oblong, acute, arrow-shaped at the base. *Inflorescence* a terminal many flowered raceme. *Calyx* small ovate concave equal pieces. *Corolla* of four oblong obtuse or notched white petals. *Stamens* with slender *filaments* and ovate purple *anthers*. *Fruit* a triangular heart-shaped siliqua, smooth, two celled, each cell with three or four ovate tawny small seeds. *Style* about half as long again as the lobes of the notch.

Habitat.—Limestone pastures in the North of England; Yorkshire, Derbyshire, Cærnarvonshire. Glen Isla, Clove, Scotland.
Perennial; flowering in June and July.

GENUS VII. CAPSEL'LA.—DE CAND. *Shepherd's Purse*.

Nat. Ord. CRUCIF'ERÆ. JUSS.

GEN. CHAR. *Silicula* laterally compressed, triangular, wedge-shaped, of two many seeded cells, *valves* sharply keeled. *Filaments* simple. *Cotyledons* incumbent.—(c Fig. 2, page 872.)—Name the diminutive of *Capsula*, a little *capsule*, or *casket*.

1. *C. Bursa-Pastoris*, De Cand. (Fig. 1018.) *Common Shepherd's Purse*. Radical leaves pinnatifid, with triangular acute slightly toothed lobes, the upper linear, undivided; siliqua triangular, wedge-shaped, notched.

Hooker, British Flora, ed. 4. vol. i. p. 247.—Lindley, Synopsis, p. 31.—*Thlaspi Bursa-Pastoris*, Linn.—English Botany, t. 1485.—English Flora, vol. iii. p. 173.

β. *minor*. Leaves entire.

γ. *sinuata*. Leaves sinuato-dentate.

δ. *pinnatifida*. Leaves all pinnatifid.

ε. *apetela*. Flowers without petals, stamens ten, or only part of the petals changed into stamens.

Root small, tapering, with slender branched fibres. *Stem* erect, rough, with pubescence, branched and leafy, from six to twelve inches high. *Leaves* a palish green, rough with hairs, the radical ones numerous, spreading, petiolated, variously lobed or cut, rarely entire, the upper ones sessile, linear, with arrow-shaped lobes at the base, entire or toothed. *Inflorescence* terminal racemes of numerous flowers, elongated and lax in fruit. *Calyx* of four small ovate concave nearly equal pieces, with a thin white membranous margin, often purplish at the back. *Petals* four, obovate, with a short claw, sometimes all or part changed into *stamens*, which are as long as the calyx, with simple *filaments* and small ovate yellow *anthers*. *Fruit* a triangular wedge-shaped siliqua, notched at the top, with a short obtuse style between the lobes, smooth, two celled, sharply keeled, but not winged at the back, each cell with about five small brown ovate seeds.

Habitat.—Waste and cultivated ground, and by road sides; very common.

Annual; flowering all summer.

This is a very variable and common plant, found in almost all parts of the world, and in most places a troublesome weed. It is remarkable for being less acrid in its properties than other of its allies. The variety *r.* is a good example of the change of the petals into stamens, especially as it is sometimes found that part of them are changed, and others are not; and perhaps upon the same plant some flowers are found perfect, and others as we have described them.

GENUS VIII. HUTCHINSIA—BROWN. *Hutchinsia*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Silicula* laterally compressed, elliptical, entire, of two cells, two seeded, *valves* keeled, and opening at the back. *Calyx* and *petals* equal. *Filaments* simple. *Cotyledons* accumbent.—(c Fig. 1, page 871.—Named in honour of the late *Miss Hutchins*, of Bantry, Ireland, who distinguished herself by a botanical knowledge of the plants of her native country, and the discovery of many new species.

1. *H. petræa*, Br. (Fig. 1019) *Rock Hutchinsia*. Leaves pinnate, smooth; stem branched and leafy; petals scarcely longer than the calyx; siliqua elliptic, obtuse; stigma sessile; seeds about four in each cell.

English Flora, vol. iii. p. 168.—Hooker, British Flora, ed. 4. vol. i. p. 247.—Lindley, Synopsis, p. 28.—*Lepidium petræum*, Linn.—English Botany, t. 111.

Root small, fibrous. *Stems* mostly several, from one to four inches high, erect, branched and leafy, smooth, or finely downy. *Leaves* about an inch long, pinnated, with opposite lobes, those of the lower leaves somewhat ovate, those of the upper linear, smooth. *Inflorescence* a terminal sub-corymbose raceme. *Flowers* numerous, small, white. *Calyx* of four equal ovate concave pieces, pale on the margin. *Petals* four, elliptic, ovate, about as long as the calyx. *Stamens* about as long as the petals, with simple slender *filaments*, and ovate yellow two celled *anthers*. *Fruit* a small elliptic siliqua, obtuse at each end, smooth, two celled, each cell containing two small pale brown ovate seeds. *Stigma* sessile in the slight terminal notch.

Habitat.—Limestone rocks and walls in the West of England, as far as Yorkshire; but not common.

Annual; flowering in March and April.

GENUS IX. TEESDALIA.—BROWN. *Teesdalia*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Silicula* laterally compressed, roundish ovate, emarginate, of two cells, two seeded, valves keeled. *Filaments* with a scale at the base. *Cotyledons* accumbent.—(c Fig. 1, page 871.)—Named in honour of Mr. Robert Teesdale, F.L.S., a Yorkshire Botanist, who died in 1804.

1. *T. nudicaulis*, Br. (Fig. 1020.) *Naked-stalked Teesdale*. Petals unequal.

English Flora, vol. iii. p. 170.—Hooker, British Flora, ed. 4. vol. i. p. 247.—*Teesdalia iberis*.—Lindley, Synopsis, p. 28.—De Cand. Prod. 1, p. 178.—*Iberis nudicaulis*.—English Botany, t. 327.

Root small, tapering. *Stems* mostly several, from two to four inches high, the central one erect, simple, and naked, the others often spreading, and with one or two leaves near the base, round, smooth, simple. *Leaves* mostly numerous, spreading in a circle round the root, petiolate, simple and ovate, or lyrato-pinnatifid, with obtuse lobes, smooth, except the margin, which is mostly ciliated with fine hairs, dark green, changing to yellow and red. *Inflorescence* a terminal sub-corymbose raceme. *Flowers* small, white. *Calyx* small, of four small ovate green or purplish pieces. *Corolla* white, of two small ovate and two much larger oblong spreading petals. *Stamens* nearly equal, *filaments* with a small white petaloid scale near the base on the inner side. *Anthers* of two roundish yellow lobes. *Fruit* a laterally compressed silicula, smooth, swollen on the under side, concave above, roundish ovate, slightly notched, with a small sessile *stigma* between the rounded lobes, acutely keeled, but not winged at the back, two celled, each cell containing two small roundish compressed seeds.

Habitat.—Sandy and gravelly banks and old walls in various parts of the country, but not very common.

Annual; flowering in May and June.

Besides our species only another of this genus is known, the *T. lepidium*, which has the petals all equal. It is found in the South of Europe, but is not a common plant.

GENUS X. IBERIS.—LINN. *Candy-tuft*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Silicula* laterally compressed, roundish ovate, emarginate, truncated, of two cells, one seeded, valves keeled and winged. *Petals* unequal. *Filaments* simple. *Seeds* ovate, pendulous. *Cotyledons* accumbent.—(c Fig. 1, page 871.)—Named from *Iberia*, *Spain*; in which country many species are found.

1. *I. ama'ra*, Linn. (Fig. 1021.) *Bitter Candy-tuft*. Stem herbaceous; leaves smooth, oblong, wedge-shaped, one to three toothed on each side; silicula sub-orbicular, emarginate, the lobes triangular, acute.

English Botany, t. 52.—English Flora, vol. iii. p. 181.—Hooker, British Flora, ed. 4. vol. i. p. 247.—Lindley, Synopsis, p. 28.

Root small, tapering, with branched fibres. *Stems* several, spreading, branched and leafy, smooth, round. *Leaves* alternate, dark green, smooth, oblong, wedge-shaped, entire, or mostly with one or two teeth on each side. *Inflorescence* a terminal sub-corymbose many flowered raceme, becoming elongated. *Calyx* of four ovate concave pieces, the two outer ones largest. *Petals* four, white, ovate, with short narrow claws, the two outer ones much larger than the other two. *Stamens* with awl-shaped simple *filaments* and roundish yellow *anthers*. *Fruit* a sub-orbicular silicula, notched with a short style between the two acute lobes, the valves keeled, and with a narrow sub-membranous wing, two celled, with a solitary pendulous ovate brown seed in each cell.

Habitat.—Chalk fields, rare; a doubtful native, apparently wild in Oxfordshire and Berkshire.

Annual; flowering in July.

Of this genus about twenty-six species are known; many of them are pretty ornamental hardy border flowers, very easy of cultivation, and continue in flower a considerable time.

GENUS XI. KO'NIGA.—ADANS. *Koniga*.

Nat. Ord. CRUCIFERÆ. Juss.

GEN. CHAR. *Silicula* sub-ovate, with nearly plane *valves*, two celled, one seeded. *Seeds* mostly with a margin. *Cotyledons* accumbent. (c Fig. 1, p. 871.)—*Calyx* patent. *Petals* entire. *Hypogynous* glands, eight. *Filaments* simple.—Name in honour of Mr. *Konig*, of the British Museum.

1. *K. mariti'ma*, Br. (Fig. 1022.) *Sea side Koniga*, or *sweet Alyssum*. Stems numerous, from a shrubby base; leaves lanceolate, acute, entire, hoary.

Hooker, British Flora, ed. 4. vol. i. p. 251.—*Alyssum maritimum*, Willd.—English Botany, t. 1729.—De Cand. Prod. 1, p. 164.—English Flora, vol. iii. p. 162.—*Glyce*.—Lindley, Synopsis, p. 26.—*Alyssum minimum*, and *Clypeola maritima*, Linn.

Root stout, branched, woody. *Stems* several, woody at the base, branched and spreading, hoary, with close pressed pubescence. *Leaves* numerous, scattered, lanceolate, acute, tapering into a foot-stalk, hoary, with close pressed pubescence. *Inflorescence* a terminal

raceme, of numerous flowers, becoming much elongated. *Flowers* white, on spreading slender pedicles. *Calyx* of four ovate concave equal pieces. *Corolla* of four ovate obtuse equal petals, with a short claw. *Stamens* with simple awl-shaped *filaments*, having between them at the base eight glands, the yellow *anthers* of two lobes. *Fruit* a sub-ovate silicula, with flat compressed *valves*, smooth, two celled, each cell with a solitary pendulous *seed*, ovate, compressed, pale brown, with a slight marginal furrow.

Habitat.—Cliffs by the sea; Devonshire, Cornwall, and near Aberdeen, in Scotland.

Perennial; flowering in August and September.

This plant, though common on almost all the sea coasts of the Continent, and especially the shores of the Mediterranean, and flowering there in sheltered situations almost all the year round, has but slender claims to the rank of a native plant of our coasts, but seems now to have established itself as a naturalized plant. It is frequently cultivated in gardens, and much esteemed from its continuing a long time in flower, and the pleasant odour which it exhales.*

GENUS XII. DRA'BA.—LINN. *Whitlow Grass.*

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Silicula* oval or oblong, with plane or sub-convex valves, two celled, many seeded. *Seeds* not with a margin. *Cotyledons* accumbent.—(c Fig. 1, p. 871.)—*Calyx* equal. *Petals* entire, or bifid. *Filaments* simple.—Named $\delta\epsilon\alpha\beta\eta$, acrid or biting, from the acrid properties of some of the species.

* *Petals* bifid, white. *Erophila*, De Cand. Prod. 1, p. 172.

1. *D. ver'na*, Linn. (Fig. 1023.) *Common Whitlow Grass*. Scape

* ALYSSUM.—LINN.

GEN. CHAR.—*Silicula* sub-rotundate, ovate, with plane or convex valves, two celled, two to four seeded. *Seeds* compressed, sometimes with a membranous margin. *Cotyledons* accumbent.—(c Fig. 1, p. 871.)—*Calyx* equal. *Petals* entire. *Filaments* toothed.

1. *A. calyci'num*, Linn. Stem herbaceous, ascending; calyx persistent; filaments toothed; silicula orbicular, with a narrow margin, clothed with very short close starry pubescence; style short; leaves lanceolate, hoary.

Habitat.—Dry sandy fields between Arbroath and sands of Barry, Scotland.

—Dr. Nicholson, 1835.

Annual; flowering in May and June.

Specimens of this plant were sent to us, in 1835, from the above station; but some doubt remains as to its claim even to be considered a naturalized plant. It is not unfrequent on the Continent, especially in the Southern parts.



1023

Draba verna



1024

Draba aizoides.



1025

Draba rupestris.



1026

Draba incana.



1027

Draba muralis.



1028

Cochlearia officinalis.

round, five to many flowered, smooth; leaves lanceolate, toothed, hairy; petals deeply cloven; silicula oblong ovate; style very short.

English Botany, t. 586.—English Flora, vol. iii. p. 158.—Hooker, British Flora, ed. 4. vol. i. p. 249.—*Erophila vulgaris*.—De Cand. Prod. 1, p. 172.—Lindley, Synopsis, p. 26.

Root small, fibrous. *Leaves* mostly numerous, radical, lanceolate, acute, somewhat tapering towards the base, more or less toothed or entire, and rough, with simple or forked hairs. *Inflorescence* an erect round smooth scape, from one to three or four inches long, terminating in a loose raceme of from four to fifteen flowers, the *pedicels* slender, spreading. *Calyx* of four ovate concave pieces. *Corolla* of four spreading white petals, deeply cloven. *Stamens* with simple awl-shaped *filaments* and yellow *anthers*, of two roundish cells. *Fruit* a smooth ovate oblong or elliptic oblong *silicula*, with flat rarely somewhat swollen valves, smooth, two celled, each cell many seeded, the *seeds* small, flat, round, the *cotyledons* accumbent.

Habitat.—Old walls, dry sandy banks, and rocks; frequent.

Annual; flowering in March and April.

** *Petals entire, or slightly emarginate.*

2. *D. aizoides*, Linn. (Fig. 1024.) *Yellow Alpine Whitlow Grass*. Scape round, smooth; petals yellow, as long again as the calyx, slightly notched; silicula ovate, with a long style; leaves lanceolate, acute, smooth, shining, keeled, the margin ciliated with rigid bristles.

English Botany, t. 1271.—English Flora, vol. iii. p. 158.—Hooker, British Flora, ed. 4. vol. i. p. 250.—Lindley, Synopsis, p. 26.

Root of spreading branched fibres. *Stems* several, repeatedly branched, and tufted. *Leaves* numerous, crowded at the end of the branches, lanceolate, acute, dark green, smooth and shining, keeled, the margin ciliated with white rigid bristly hairs. *Scape* erect, from one to two inches long, round, smooth, terminating in a sub-corymbose cluster of bright yellow flowers. *Calyx* of four equal broadly ovate concave pieces, sub-membranous on the margin. *Corolla* of four ovate obtuse or slightly emarginate *petals*, with a short claw, as long again as the calyx. *Stamens* with simple awl shaped *filaments* and yellow *anthers*, of two rounded lobes. *Fruit* an ovate silicula, scattered over with hairs, compressed, two celled, each cell containing several roundish pale compressed *seeds*. *Style* almost as long as the silicula.

Habitat.—Walls and rocks about Swansea, South Wales.

Perennial; flowering in March and April.

This beautiful little species of *Draba* is frequent on the rocks in alpine districts of the Continent, where its bright yellow flowers and dark green foliage hanging in matted tufts are extremely ornamental, and it derives nourishment from rocks, where but little seems likely to be obtained; but it spreads its long slender branched roots amongst

the crevices and inequalities of the stone, and is enabled to bear all the vicissitudes of its exposed situation. From its hardy habit and showy flowers, it is well adapted for rock work, and the more exposed it is the more it seems to flourish and flower luxuriantly; it is one of those early harbingers of Spring, which remind us of the vernal response—

"I come! I come!—ye have called me long;
I come o'er the mountain with light and song!
Ye may trace my steps o'er the wakening earth,
By the winds that tell of the violet's birth,
By the primrose stars in the shadowy grass,
By the green leaves opening as I pass."

Hemans.

3. *D. rupes'tris*, Br. (Fig. 1025.) *Rock Whitlow Grass*. Scape round, and as well as the pedicles hairy, often bearing one or two leaves at the base; petals white, longer than the calyx, slightly notched; silicula oblong, ovate, hairy, with a very short style; leaves flat, lanceolate, hairy.

Hooker, *British Flora*, ed. 4. vol. i. p. 250.—Lindley, *Synopsis*, p. 26.—*D. hirta*.—English Botany, t. 1338.—English *Flora*, vol. iii. p. 159.

Root of very long slender branched fibres. *Stems* several, round, slender, hairy, repeatedly branched, and bearing a tuft of numerous crowded lanceolate leaves, tapering at the base, flat, more or less thickly scattered over with simple rigid hairs, sometimes there are a few forked ones mixed amongst them. *Scapes* mostly several from the same root, from one to two inches high, round, slender, clothed with spreading hairs, and often bearing near the base one or two leaves, and bearing at the top a few white flowers, in a sub-corymbose form, each on a slender hairy pedicle, and sometimes one or two of the lower ones arising from the axis of a small leaf. *Calyx* oblong, mostly hairy, the margins white, membranous. *Corolla* of four oblong wedge-shaped white petals, obtuse, often slightly notched, and about as long again as the calyx. *Stamens* with simple filaments and yellow two celled anthers. *Fruit* an ovate oblong compressed silicula, scattered over with forked or starry pubescence, rarely smooth, and crowned with a very short thick style and obtuse stigma, two celled, each cell containing several small pale brown ovate flat seeds.

Habitat.—Mountains, rare; upon the summit of Ben Lawers and Cairngorum, and Ben Hope, Scotland.

Perennial; flowering in July.

4. *D. inca'na*, Linn. (Fig. 1026.) *Twisted podded Whitlow Grass*. Stem with deeply toothed lobes, and hoary, with starry pubescence, the radical ones lanceolate, numerous; petals much longer than the calyx; silicula elliptic, oblong, smooth, somewhat twisted, longer than the hairy pedicles.

English Botany, t. 388. (*large from a cult. specimen*).—English *Flora*, vol. iii. p. 161.—Hooker, *British Flora*, ed. 4. vol. i. p. 250.—Lindley, *Synopsis*, p. 26.—*D. contorta*, De Cand. Prod. 1, p. 170.

Root long, tapering, with slender branched fibres. *Stem* erect, from four to twelve inches high, round, simple or branched, hoary, with starry pubescence, sometimes at the base the hair becomes long and woolly. *Leaves* numerous, the radical ones crowded in a rose-like form, lanceolate, entire, or toothed, those of the stem sessile, ovate lanceolate, deeply and unequally toothed, rarely entire, ribbed, all clothed with close pressed starry pubescence. *Inflorescence* a terminal many flowered raceme, becoming much elongated in fruit. *Calyx* of four equal concave hairy pieces. *Corolla* of four ovate heart-shaped petals, tapering into a short claw, white. *Fruit* an elliptical oblong or elliptic lanceolate silicula, smooth, mostly half twisted, flat, with somewhat thickened margins, crowned by a short thick *style* and capitate *stigma*, two celled, many seeded.

Habitat.—Limestone rocks in alpine situations in Wales, the North of England, Scotland, and Ireland.

Biennial; flowering in May and June.

This is an extremely variable plant in size and appearance. When grown upon a dry rocky situation it is not more than two or three inches high, simple, and scarcely leafy; if in a wet one it is twelve inches high, branched and leafy, and much stouter.

5. *D. muralis*, Linn. (Fig. 1027.) *Speedwell-leaved Whitlow Grass*. Stem branched and leafy; leaves ovate, obtuse, toothed, amplexicaul; silicula elliptic, oblong, obtuse, flat, smooth, many seeded; stigma sessile.

English Botany, t. 912 —English Flora, vol. iii. p. 161.—Hooker, British Flora, ed. 4. vol. i. p. 250.—Lindley, Synopsis, p. 26.

Root tapering, and with branched fibres. *Stem* erect, from six to eighteen inches high, round, clothed with close starry pubescence, simple, or alternately branched, slender, leafy. *Leaves* ovate, rough, with pubescence, strongly serrated and ribbed, the radical ones numerous, depressed, the upper ones sessile, heart-shaped at the base, and embracing the stem. *Inflorescence* a terminal raceme, becoming much elongated in fruit. *Calyx* of four ovate equal pieces, smooth, or sometimes hairy. *Corolla* of four white obovate entire short clawed petals. *Stamens* with simple *filaments* and ovate yellow *anthers*, of two cells. *Fruit* a smooth ovate compressed two celled silicula, crowned by the sessile obtuse *stigma*, each cell containing from six to eight *seeds*, small, flat, pale brown, the pedicles of the fruit slender, spreading, smooth, mostly as long again as the silicula.

Habitat.—Rocks and walls in limestone countries, but rare; Craven, Yorkshire; Warden Hills, Bedfordshire; Emborough, Somersetshire; Garden walls, Chelsea; about Forfar and Edinburgh, Scotland; Blarney Castle, Ireland.

Annual; flowering in May.

This species we find common both on lime and sandstone rocks and walls amongst the Apennines of Italy.

GENUS XIII. COCHLEARIA—LINN. *Scurvy-grass.*

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Silicula* oval, or sub-rotundate, with very convex or turgid valves. *Seeds* mostly without a margin. *Calyx* equal. *Petals* entire. *Filaments* simple. *Cotyledons* accumbent.—(c Fig. 1, p. 871.)—Name from *cochlear*, a *spoon*; from the shape of the leaves.

1. *C. officinalis*, Linn. (Fig. 1028.) *Common Scurvy-grass.* *Silicula* globose, slightly veiny; radical leaves petiolated, broadly ovate, sub-cordate, entire, or sinuated, the upper ones sessile, deeply cordate, lobed at the base, and embracing the stem.

English Botany, t. 551.—English Flora, vol. iii. p. 175.—Hooker, British Flora, ed. 4. vol. i. p. 248.—Lindley, Synopsis, p. 27.

Root tapering, and with branched fibres. *Stems* mostly several, branched, angular, smooth, succulent, leafy, very variable in size. *Leaves* smooth, somewhat fleshy, dark green, the radical ones on long channeled footstalks, broadly ovate, somewhat heart-shaped at the base, waved, or sinuated on the margin, the stem leaves sessile, oblong, deeply cordate, with two lateral lobes embracing the stem, more or less waved, and deeply toothed towards the base. *Inflorescence* terminal and lateral, corymbose, racemes of numerous flowers, becoming much elongated when in fruit. *Calyx* of four equal ovate concave pieces, pale and membranous on the margin. *Corolla* of four equal white ovate oblong petals, tapering at the base into a claw. *Stamens* with slender awl-shaped simple *filaments*. *Anthers* yellow, of two ovate cells. *Fruit* a roundish ovate *silicula*, smooth, obscurely reticulated with veins, crowned by the short *style* and obtuse *stigma*, two celled, each cell from four to six seeded, the *pedicles* three times as long as the *silicula*, spreading, slender.

Habitat.—Stony or muddy places on the sea coast, also on marshy places in mountainous districts.

Annual; flowering in May and June.

Scurvy-grass is frequently cultivated in gardens for its medicinal properties, the expressed juice being used as an antiscorbutic, but it does not now enjoy so great a reputation as formerly.

2. *C. Grænlân'dica*, Linn. (Fig. 1029) *Greenland Scurvy Grass.* *Silicula* globose, slightly veined; radical leaves petiolated, kidney-shaped, entire, fleshy, upper ones sessile, oblong, entire or toothed at the base.

English Botany, t. 2403.—English Flora, vol. iii. p. 175.—Hooker, British Flora, ed. 4. vol. i. p. 249.—Lindley, Synopsis, p. 27.

Root tapering, and with branched fibres. *Stems* mostly several, simple or branched, erect and spreading, from two to four inches high,



1029 *Cochlearia groenlandica.*



1030 *Cochlearia anglica.*



1031 *Cochlearia danica.*



1032 *Cochlearia armoracea.*



1033 *Camelina sativa.*



1034 *Subularia aquatica.*

angular, smooth and fleshy. *Leaves* small, numerous, smooth, fleshy, the radical ones on long slender footstalks, kidney-shaped, sometimes heart-shaped, entire, the upper ones few, sessile, oblong, entire, or occasionally with one or two teeth on each side at the base. *Inflorescence* terminal corymbose racemes, of rather large numerous crowded flowers, becoming much elongated. *Calyx* of four ovate concave entire equal pieces, green, or of a purplish colour. *Corolla* of four ovate oblong short clawed petals, of a pinkish hue, more than as long again as the calyx. *Stamens* with simple awl-shaped *filaments* and ovate yellow *anthers*, of two cells. *Fruit* a small globose *silicula*, two celled, smooth, obscurely veiny, crowned by the short *style* and obtuse *stigma*.

Habitat.—Sea shores and Highland Mountains of Scotland.

Annual; flowering in June and July.

This is a much smaller plant than the last species, from which it differs in its smaller entire radical leaves, and those of the stem being oblong and entire, or nearly so; the fruit is much the same, but smaller. How far this is distinct as a species from some of the small varieties of *C. officinalis* seems doubtful.

3. *C. Anglica*, Linn. (Fig. 1030) *English Scurvy Grass*. *Silicula* oblong, reticulated with prominent veins; radical leaves petiolated, ovate, heart-shaped, entire, fleshy, the upper ones oblong lanceolate, more or less toothed and sessile.

English Botany, t. 552.—English Flora, vol. iii. p. 176.—Hooker, British Flora, ed. 4. vol. i. p. 249.—Lindley, Synopsis, p. 27.

Root tapering, and with numerous slender branched fibres. *Stems* mostly several, spreading and erect, smooth, angular, generally pinkish, about six inches high, simple or branched. *Leaves* a dark green, smooth and fleshy, the radical ones on long slender footstalks, ovate, or ovate heart-shaped, entire, the upper ones sessile, or shortly petiolated, oblong lanceolate, toothed at the base, or entire. *Inflorescence* terminal sub-corymbose racemes, becoming much elongated in fruit. *Calyx* of four ovate often pinkish equal pieces, with a pale membranous margin. *Corolla* of four ovate white petals, with a short claw as long again as the calyx. *Stamens* with simple *filaments* and ovate yellow *anthers*, of two cells. *Fruit* a globoso-oblong *silicula*, reticulated with prominent veins, smooth, crowned with an elongated style and obtuse *stigma*, the *pedicles* slender, rather longer than the *silicula*. *Seeds* large, ovate, four or five in each cell, beautifully reticulated with fine elevated lines.

Habitat.—Muddy and stony places on the sea coast, frequent; and in marshy places on mountains, Snowden.

Annual; flowering in May and June.

This is a very variable* species in size and luxuriance, according to the place of its growth; but it is readily distinguished by its larger

and more oblong siliquas, and by the back of the valves being marked by numerous elevated netted veins.

4. *C. Dan'ica*, Linn. (Fig. 1031.) *Danish Scurvy Grass*. Silicula ovate, reticulated with prominent veins; leaves all petiolated, triangular, lobate, smooth and fleshy.

English Botany, t. 696.—English Flora, vol. iii. p. 177.—Hooker, British Flora, ed. 4. vol. i. p. 249.—Lindley, Synopsis, p. 27.

Root tapering, and with branched fibres. *Stems* mostly several, spreading and erect, rarely branched, angular, smooth, slender. *Leaves* all on slender channeled footstalks, smooth, dark green, fleshy, the radical ones mostly heart-shaped at the base, and of three angular lobes, the upper ones in three or five lobes, ovate. *Inflorescence* terminal sub-corymbose racemes, of white flowers, becoming much elongated when in fruit. *Calyx* of four ovate small purplish pieces, with a narrow membranous margin. *Petals* four, rather small, white, ovate. *Fruit* an ovate elliptical silicula, netted with somewhat elevated veins. *Style* short. *Stigma* obtuse. *Seeds* small, ovate, brown, about six in each cell.

Habitat.—Muddy and stony places on the sea coast; less frequent than the last species.

Annual; flowering in May and June.

This is distinguished from the other species by its angular almost deltoid leaves, and its elliptical silicula reticulated by slightly elevated veins.

5. *C. Armora'cea*, Linn. (Fig. 1032.) *Horse Radish*. Silicula oblong; stigma dilated, nearly sessile; radical leaves oblong, crenated, on long footstalks, the upper elongate, lanceolate, and linear.

English Botany, t. 2323.—English Flora, vol. iv. p. 177.—Hooker, British Flora, ed. 4. vol. i. p. 249.—Lindley, Synopsis, p. 27.

Root long, cylindrical, white. *Stem* erect, about two feet high, branched and spreading, smooth, furrowed. *Leaves* numerous, the radical ones large, oblong, the margin waved and crenated, on long thick stout channeled footstalks, those of the stem on shorter stalks, the lower ones sometimes deeply cut in a pinnatifid manner, the upper linear lanceolate, and crenated, or serrated, [sometimes entire. *Inflorescence* a large branched panicle, with sub-corymbose flowers, forming in fruit elongated racemes. *Calyx* of four equal green pieces. *Corolla* of four white ovate oblong petals, about as long again as the calyx. *Fruit* an elliptic oblong smooth silicula, notched at the apex. *Style* short. *Stigma* capitate, much dilated. *Seeds* seldom perfected.

Habitat.—In moist mountainous places in several parts of the North of England and Scotland; a doubtful native.

Perennial; flowering in May.

The root of Horse Radish is the well known condiment usually brought to our tables with the national fare of roast beef. It has a

very pungent odour, a highly acrid taste, and strong stimulating properties, which depend upon the presence of a pale yellow volatile oil, which for the most part is dissipated by drying; hence the necessity of keeping it either for domestic or medicinal purposes in sand. Medicinally Horse Radish is used as a stimulant and diuretic in dropsical affections, chronic rheumatism, and paralytic affections; it is useful also in some cases of dyspepsia, relaxed throat, and some cutaneous diseases. It is found useful also as an external stimulating rubefacient, and infused in milk it is said to form one of the best cosmetics, by its gently stimulating the action of the skin.

The cultivation of Horse Radish, especially for domestic use, has for some time had the attention of gardeners. The modes that have been found to answer best are those proposed by Mr. Knight and Mr. Judd; they agree in the necessity of having the ground deeply trenched, and that of a moist sandy nature is the best, and putting a quantity of manure at the bottom of the trench: then Mr. Knight plants his selected sets on the surface, and as the nutriment is absorbed only by the extremities of the small branched lateral and terminal radicles, he calculates on its penetrating the manure below; but Mr. Judd with the same object in view, having finished trenching, bores holes down to the manure and drops in his sets, and then fills up each hole with wood ashes, rotten tan, or light sand to the surface, through which the plant may easily penetrate. Both plans are good, and answer the purpose very well: the latter is, perhaps, on the whole, preferable, and produces the straightest and stoutest roots.

GENUS XIV. CAMELINA.—CRANTZ. *Gold of Pleasure.*

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Silicula* obovate or sub-globose, with very convex valves, the point terminating in a linear process. *Seeds* numerous, oblong. *Cotyledons* incumbent.—(c Fig. 2, p. 872.)—*Filaments* simple. *Style* filiform.—Name from *χαμαί*, dwarf, or humble, and *Linum*, flax.

1. *C. sativa*, Crantz. (Fig. 1033.) *Common Gold of Pleasure.* *Silicula* obovate; leaves sessile, lanceolate, entire, or slightly toothed clasping the stem with their arrow-shaped base.

English Flora, vol. iii. p. 164.—Hooker, British Flora, ed. 4, vol. i. p. 250.—Lindley, Synopsis, p. 30.—*Alyssum sativum*, Sm.—English Botany, t. 1254.—*Myagrum sativum*, Linn.

Root fibrous. *Stem* erect, from one to two feet high, round, smooth, or slightly downy, branched above in a paniculated manner. *Leaves* alternate, lanceolate, from two to three inches long, arrow-shaped at the base, with acute lobes embracing the stem, entire, or slightly toothed

on the margin, a bright green, paler beneath. *Inflorescence* terminal sub-corymbose clusters of yellow flowers, becoming when in fruit elongated racemes, the *pedicles* long, slender, spreading. *Calyx* of four equal elliptic ovate pale green pieces. *Corolla* of four ovate yellow petals, with a slender claw. *Stamens* with slender *filaments* and oblong yellow *anthers*, of two cells. *Fruit* an obovate smooth silicula, with a prominent margin, the point tapering into a short style. *Stigma* obtuse. *Seeds* from six to eight in each cell, ovate, compressed.

Habitat.—Cultivated fields, mostly amongst flax, with which it has been imported from the Continent.

Annual; flowering in June and July.

This species is grown in some parts of the Continent for the purpose of extracting from the seeds the fixed oil with which they abound, which somewhat resembles olive oil, and with which it is often mixed when there is a scarcity of that more valuable article. The name of Gold of Pleasure, given to the *Camelina*, appears an absurdity; but it seems probable that to so humble and mean a flowering plant, it has been given satirically, implying that as the pompous name of this plant leads us to expect, in the appearance of it, much more pleasure than it gives, so gold sought after for the pleasures which it is supposed to purchase, brings with it disappointments and regret. The provincial names of plants are mostly very characteristic, either of their supposed or real virtues, or of something remarkable in the history of the plant; thus the *Anastatica Hierochuntica*, Linn., the Rose of Jericho, or Holy-rose, is so called, not that it belongs to the tribe of Roses at all, but is a Cruciferous plant, growing common on the deserts and sandy wastes of Egypt, Palestine, and Syria; it is frequent in Barbary, and abounds on the desert of Sin. After the flowers have performed their functions, and the leaves have fallen away, the branches in drying all curl inwards, and closely enfold the fruit, thus forming a compact globular mass, having some resemblance to the form of a Rose, hence it has received the name of the *Rose of Jericho*. When thus curled up, and the roots having lost their vitality, the plant is readily torn up by the wind, and blown about the desert sands, until it meets with a watery spot, or is moistened by rain, when the branches expand, and the seeds escape from their enclosure at the only time when they could be embedded in the loose flowing sands, there to germinate and propagate the species to adorn the burning deserts. This hygrometric power of the plant has given rise to a belief amongst the common people of Palestine, that it blossomed at the instant our Saviour was born; and, therefore, they believe, that if when the pains of childbirth first come on, the woman takes one of these plants in her hand, and holds it in warm water, that its expansion is an index of the progress of the labour, and that the child will be born as soon as it is fully expanded; to do this it takes several hours, and it is probable that in

those warm countries the labour is frequently over before the plant is fully expanded. From this circumstance it is called *Kaf Maryam*, that is, Mary's hand, but more commonly called Holy-rose. After the plant has been thus expanded by moisture, it again resumes its former shape upon drying, and the operation may be repeated again and again even after it has been dried for years; hence it has had given the generic name of *Anastatica*, derived from *αναστασις*, resurrection. Such a high value is placed upon these plants in Jerusalem, and some other of the cities of Palestine, that a friend who has several times visited them informs us that he can barter with them for almost any valuable articles, and that a present of one of these "Roses" to the women, will obtain their aid and assistance to procure all that is in their power to add to the comfort of travellers.

GENUS XV. SUBULARIA.—LINN. *Awl-wort*.

Nat. Ord. CRUCIFERÆ: JUSS.

GEN. CHAR. *Silicula* oval, pointless, with turgid valves. *Seeds* numerous. *Cotyledons* linear, biplicate.—(c Fig. 5, p. 872.)—*Stigma* sessile.—Name from *subula*, an awl; on account of the awl shape of the leaves.

1. *S. aquatica*, Linn. (Fig. 1034.) *Awl-wort*.

English Botany, t. 732.—English Flora, vol. iii. p. 157.—Hooker, British Flora, ed. 4. vol. i. p. 249.—Lindley, Synopsis, Suppl. p. 319.

Root of numerous long white simple fibres, penetrating the mud. *Leaves* all radical, quite smooth, awl-shaped, spreading, from one to three inches long. *Scape* simple, round, slender, smooth, erect, from two to four inches high, bearing at the top a racemose cluster of a few white flowers. *Calyx* of four equal ovate concave pale green pieces. *Corolla* of four small ovate white petals. *Stamens* with simple filaments and ovate yellow anthers, of two cells. *Fruit* an ovate obtuse silicula, with somewhat convex valves, smooth, two celled, each containing several small flat ovate dark brown seeds, the *cotyledons* with long twice curved lobes, and the curvature taking place above the cotyledons.

Habitat.—Shallow margins of alpine lakes; common.

Perennial; flowering in July.

This little water plant, the only known species of the genus, is remarkable, as expanding its flowers often several feet below the surface of the water, and there performing its functions and fertilizing its seeds, a circumstance very unusual in aquatic plants, as generally they are in some way or other furnished with the means of elevating their flowers above the surface of the water, there to expand for the purpose of fecundation, as in the *Utricularia*, vol. 1, *Nymphaea*,

Nuphar, and many others. The means by which this little curious plant is enabled, while its flowers are thus submerged, to propagate its species, are not discovered.

ORDER II.

SILIKUOSA.—Fruit a long narrow pod.

GENUS XVI. MATTHI'OLA.—BROWN. *Stock*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Silique* linear, roundish, or compressed. *Stigma* of two lobes, erect, thickened at the back, or pointed at the base, connivent. *Calyx* bisaccate at the base, erect. *Filaments* dilated. *Seeds* compressed. *Cotyledons* plane, accumbent.—(c Fig. 1, p. 871.)—Named in honour of P. S. Matthiolus, an Italian physician, who obtained great reputation, and wrote several works on the virtues of plants; he was a native of Sienna, and died of plague, at Trent, in 1577, at the age of 76.

1. *M. inca'na*, Brown. (Fig. 1035.) *hoary shrubby Stock*. Stem erect, branched, shrubby at the base; leaves lanceolate, entire, hoary; silique cylindrical, without glands.

English Flora, vol. iii. p. 205.—Hooker, British Flora, ed. 4. vol. i. p. 255.—Lindley, Synopsis, p. 22.—*Cheiranthus incanus*, Linn.—English Botany, t. 1935.

Root much divided into long slender fibres. *Stem* erect, about two feet high, shrubby at the base, branched in a bushy manner above, round, hoary. *Leaves* numerous, lanceolate, obtuse, entire or waved on the margin, thick, and of a leathery substance, clothed on both sides with close more or less thick starry hoary pubescence, the mid-rib stout, forming a short footstalk at the base. *Inflorescence* terminal sub-corymbose clusters, the *pedicles* hoary, round, mostly longer than the *calyx*, which is hoary, of four linear lanceolate pieces, two opposite ones swollen at the base. *Corolla* of four obovate purple petals, entire, or with a broad shallow notch, the claw yellow, slender, as long as the calyx. *Stamens* with awl-shaped *filaments*, the longer ones somewhat dilated towards the base. *Anthers* oblong, of two linear lobes. *Fruit* a sub-cylindrical silique, from two to three inches long, hoary, but without any glands, crowned by the two lobed *stigma*, each lobe having a broad scale at the back. *Seeds* numerous in each cell, pale brown, with a thin white membranous margin, compressed, somewhat concave on one side. *Cotyledons* accumbent.

Habitat.—Maritime cliffs near Hastings, but not wild; Ventor, Isle of Wight.

Biennial or Perennial; flowering in May and June.



1035

Matthiola incana.



1036

Matthiola sinuata.



1037

Hesperis matronalis.



1038

Cherianthus cheiri.



1039

Barbarea vulgaris



1040

Barbarea praecox.

This is the origin of the now well known and extensively cultivated Stock, of which there is a great variety both of the single and double flowers. It is an old inmate of the garden, and by ancient dames was cultivated with great care at the baronial castle; hence it obtained the name of *Castle gillyflower*. The varieties are classed according to their colour, as the *purple*, *red*, *white*, and *variegated*, and of these there are both double and semi-double. By cultivation variations are so much increased both in the size of the plant and the flower, as to appear more like a Rose than its original simple form. Few plants are more showy and more elegant as a border flower; they are easy of cultivation, and continue flowering a considerable time. Besides this species there are commonly cultivated the *M. annua*, or Ten-week Stock, a native of the South of Europe, the *M. græca*, the Wallflower-leaved, and the *M. fenestralis*, the Window Stock, and others. The fragrance which some of the flowers exhale is much enjoyed by most people; but if the flowers are kept in a close room it is too powerful, and causes a disagreeable head-ache. From the beauty of the flowers and their long continuance, the stock in the emblematic language of flowers is the sign of *lasting beauty*.

2. *M. sinuata*, Brown. (Fig. 1036.) *Great Sea Stock*. Stem herbaceous, spreading, branched; leaves oblong, downy, the lower ones sinuated; siliqua compressed, downy and rough, with glands.

English Flora, vol. iii. p. 206.—Hooker, British Flora, ed. 4. vol. i. p. 255.—Lindley, Synopsis, p. 22.—*Cheiranthus sinuatus*, Linn.—English Botany, t. 462.

Root tapering, and with branched fibres. *Stem* herbaceous, branched, spreading, round, leafy, and as well as the whole plant clothed with woolly pubescence, and more or less profusely scattered over with rigid glandular hairs. *Leaves* oblong, tapering at the base into a stout footstalk, the upper ones mostly entire, the lower sinuated. *Inflorescence* a terminal sub-corymbose cluster, becoming much elongated after flowering. *Calyx* of four linear pieces, two opposite ones swollen at the base. *Corolla* of four broadly ovate notched petals, of a dingy purple colour, the claw long, narrow, yellow. *Stamens* with awl-shaped *filaments* and yellow two celled oblong *anthers*. *Fruit* a compressed siliqua, two or three inches long, clothed with soft pubescence and rigid glandular hairs, crowned by the two lobed *stigma*, each lobe having at the back a broad obtuse scale. *Seeds* numerous in each cell, flat, with a pale membranous margin. *Cotyledons* accumbent.

Habitat.—Sandy sea coasts of Wales, and Cornwall, Jersey, and Guernsey.

Biennial; flowering from May to August.

The fragrance of the flowers of this species appears much more volatile than that of the last; it has scarcely any scent during the day,

but in the cool of the evening it is very fragrant. It is cultivated as a border flower, but is less common, though not less worthy of cultivation than the last species.

GENUS XVII. HESPERIS.—LINN. *Dame's Violet*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Siliqua* linear, rounded, or angular. *Stigma* of two erect flat connivent lobes. *Calyx* erect, bi-saccate at the base. *Seeds* oblong, slightly angular. *Cotyledons* incumbent.—(c Fig. 2, p. 871.)—Name from *ἑσπερος*, the evening; so called on account of the flowers being most fragrant in the evening.

H. matron'alis, Linn. (Fig. 1037.) *Common Dame's Violet*. Stem erect, nearly simple; leaves ovate lanceolate, toothed; pedicles as long as the calyx; petals obovate, obtuse; siliqua erect, linear, the margins not thickened, smooth, waved, with the protuberant seeds.

English Botany, t. 731.—English Flora, vol. iii. p. 207.—Hooker, British Flora, ed. 4. vol. i. p. 255.—Lindley, Synopsis, p. 29.—*H. inodora*, Linn.

Root fibrous. *Stem* erect, from two to three feet high, leafy, simple, or slightly branched upwards, round, more or less clothed with short close pubescence. *Leaves* scattered, ovate lanceolate, with a long tapering point, on a short footstalk, single ribbed, the margin more or less distantly toothed, the teeth small, mostly glandular, darkish green, paler beneath, and more or less clothed with pubescence. *Inflorescence* a terminal sub-corymbose raceme, much elongated when in fruit. *Calyx* of four oblong pieces, more or less hairy, membranous at the apex, and somewhat gibbous at the base. *Corolla* of four equal petals, the claw narrow, slender, as long as the calyx, the limb obovate, entire, obtuse, or slightly notched, a pale pink. *Stamens* with simple filaments and yellow two celled oblong anthers. *Stigma* nearly sessile, of two simple downy erect lobes. *Fruit* an erect linear siliqua, nearly cylindrical, smooth, irregularly swollen and depressed in an undulating manner by the protruding seeds, which are elliptic, ovate, somewhat concave on one side.

Habitat.—Hilly pastures, especially in a sandy country; rare in various parts of England, Scotland, and Ireland, but a doubtful native.

Perennial; flowering in May and June.

This is a common species in many parts of the mountainous districts of Italy; the flowers are scarcely fragrant by day, but exhale a very pleasant odour by night. By cultivation the flowers become much larger and double, and are then very ornamental; but to keep them so requires great care in frequently supplying it with fresh rich loamy soil.

GENUS XVIII. CHEIRANTHUS.—LINN. *Wallflower*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Siliqua* linear, compressed, or quadrangular, from each valve having a prominent dorsal rib. *Stigma* of two recurved lobes. *Calyx* erect, with the opposite pieces swollen at the base. *Seeds* ovate, compressed. *Cotyledons* accumbent.—(c Fig. 1, p. 871.)—Named from the Arabic word *Kheyry*, but originally applied to another genera of sweet-scented flowers.

1. *C. Cheiri*, Linn. (Fig. 1038.) *Common Wallflower*. Leaves entire, lanceolate, acute, hoary, with close pressed hairs; stem shrubby, with angular branches; *siliqua* linear, compressed; lobes of the stigma spreading.

Hooker, British Flora, ed. 4. vol. i. p. 255.—Lindley, Synopsis, p. 22.—*C. fruticosus*.—English Botany, t. 1934.—English Flora, vol. iii. p. 203.

Root fibrous. *Stem* woody at the base, much branched, angular, leafy, hoary, with stout close pressed silvery hairs. *Leaves* lanceolate, acute, tapering into a footstalk, entire, hoary, with close pressed silvery hairs, especially on the under side. *Inflorescence* a terminal many flowered sub-corymbose raceme. *Calyx* of four oblong hoary pieces, mostly with a narrow membranous margin, the two opposite ones swollen at the base in a saccate manner. *Pedicles* angular, as long or longer than the calyx. *Petals* four, ovate, or obovate, spreading, a pale or orange yellow, and often more or less stained with blood red or brown, the claw narrow, slender, white, as long as the calyx. *Stamens* as long as the calyx, the *filaments* simple, awl-shaped, the *anthers* oblong, yellow, two celled. *Stigma* spreading, or recurved, of two ovate obtuse lobes, downy. *Fruit* a linear *siliqua*, about two inches long, clothed with short close pressed hairs, the valves with a stout dorsal rib at the base. *Seeds* numerous in each cell, compressed, with a narrow membranous margin.

Habitat.—Cliffs, old walls, and ruins; frequent.

Perennial; flowering in April and May.

The delightful fragrance of the Wallflower has ever obtained it a place in the esteem of most lovers of plants; its easy cultivation, hardy habit, and fullness in blooming, even in the poorest soil, cause it to be an inhabitant of every class of gardens. Its natural place of growth upon old walls, the battlements and towers of ancient castles, ruined abbeys, and mouldering turrets, has associated it sentimentally with the stern hand of time mouldering to pristine earth even the most durable materials of man's erection; but this little flower still flourishes as it did when they were in their glory, and seems

proof against the work of time and misfortunes; and as the poet Bernard Barton says—

“ To me thy site disconsolate,
On turret wall or tower,
Makes thee appear misfortune's mate
And desolation's dower.
Thou asks't no kindly cultured soil,
Thy natal bed to be,
Thou need'st not man's officious toil,
To plant or water thee.
Sown by the winds thou meekly rearest,
On ruin's crumbling crest,
Thy fragile form, and then appearest
In smiling beauty drest.
Then in thy bleak and earthless bed,
Thou bravest the tempests strife,
And giv'st what else were cold and dead,
A lingering glow of life.”

This habit of the plant being observed by minstrels and troubadours of the days gone by, they carried a branch of the Wallflower in their coat, as the emblem of an affection, which is proof against time and misfortune. Perhaps no one has paid a more beautiful tribute to a flower than Moir has to the Wallflower, a part of whose verses we cannot refrain from quoting from Blackwood's Magazine:—

“ The Wallflower, the Wallflower !
How beautiful it blooms !
It gleams above the ruined tower,
Like sunlight over tombs ;
It sheds a halo of repose,
Around the wrecks of time ;
To beauty give the flaunting Rose—
The Wallflower is sublime.

Flower of the solitary place !
Gray ruin's golden crown,
That lendest melancholy grace,
To haunts of old renown ;
Thou mantlest e'er the battlement,
By strife or storm decay'd ;
And fillest up each envious rent,
Time's canker-tooth hath made.

Rich is the Pink, the Lily gay—
The Rose is summer's guest ;
Bland are thy charms when these decay,
Of flowers first, last, and best !
There may be gaudier in the bower,
And statelier on the tree—
But Wallflower, loved Wallflower,
Thou art the flower for me !”

GENUS XIX. BARBARE'A.—BROWN. *Winter-ress.*

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Siliqua* linear, round, the valves with a prominent longitudinal rib or vein. *Calyx* erect, equal at the base. *Stigma* obtuse, entire, or emarginate. *Cotyledons* accumbent.—(See Fig. 1, p. 871.)—Name from *St. Barbara*, to whom this plant was formerly dedicated.

1. *B. vulgaris*, Brown. (Fig. 1039.) *Bitter Winter-ress, Yellow Rocket*. Lower leaves lyrate, the terminal lobe roundish ovate, the upper leaves obovate, undivided, toothed, sessile; *siliqua* erect, roundish, the dorsal rib stout, prominent.

English Botany, vol. iii. p. 198.—Hooker, British Flora, ed. 4. vol. i. p. 253.—Lindley, Synopsis, p. 23.—*Erysimum Barbarea*, Linn.—English Botany, t. 443.

Root tapering, and with branched fibres. *Stem* erect, about two feet high, simple or branched, angular, furrowed, leafy, smooth. *Leaves* on the lower part of the stem, lyrate, with entire or toothed linear oblong lateral lobes, the terminal one large, roundish oblong, entire, toothed or waved, the upper ones obovate, sessile, entire, toothed, waved or lobed, mostly auriculated at the base, and embracing the stem, all dark green, smooth, paler beneath. *Inflorescence* terminal sub-corymbose racemes of numerous flowers. *Calyx* of four equal ovate erect pieces. *Corolla* of four equal spreading petals, the claw narrow, about as long as the calyx, the limb ovate, spreading. *Stamens* with awl-shaped *filaments* and yellow oblong *anthers*. *Fruit* an erect smooth *siliqua*, on a short angular *pedicle*, smooth, about an inch long, pointed, with the tapering style and small obtuse stigma, the valves with a stout dorsal rib, giving the *siliqua* a somewhat square shape. *Seeds* numerous, compressed, ovate, dark brown, beautifully dotted over with small depressions.

Habitat.—Pastures and hedges, especially in a moist soil; frequent. Perennial; flowering from May to August.

The Yellow Rocket is sometimes cultivated as a pot herb, and the young leaves and branches are also used as a salad; it is, however, an inferior vegetable, and not much esteemed. The flowers by cultivation become much larger and double, forming a pretty border ornament, as they continue a long time in bloom.

2. *B. præcox*, Brown. (Fig. 1040.) *Early Winter-ress*. Lower leaves lyrate, the terminal lobe roundish, heart-shaped, the upper ones deeply pinnatifid, with linear oblong entire lobes, the terminal linear oblong; *siliqua* linear, obtuse.

English Flora, vol. iii. p. 199.—Hooker, British Flora, ed. 4. vol. i. p. 253.—Lindley, Synopsis, p. 25.—*Erysimum præcox*, Sm.—English Botany, t. 1129.

Root tapering, and with many branched fibres. *Stem* erect, about two feet high, smooth, angular, leafy, branched. *Leaves* smooth, dark green, paler beneath, the radical ones lyrate, with the terminal lobe roundish, heart-shaped, entire, crenated, lobed or waved, the lateral lobes ovate or oblong, entire or waved, the upper leaves pinnatifid, with spreading linear oblong lobes, the terminal one scarcely broader than the others. *Inflorescence* a terminal sub-corymbose raceme of a few small yellow flowers, shortly forming an elongated raceme, the *pedicels* short, thick. *Calyx* ovate oblong, with a narrow membranous margin, equal at the base. *Petals* smaller than the last species, paler, the claw narrow, about the length of the calyx, the limb obovate, spreading. *Stamens* with awl-shaped filaments and yellow ovate oblong two celled *anthers*. *Fruit* about three inches long, linear, obtuse, with the nearly sessile stigma, smooth, the valves with a prominent dorsal rib. *Seeds* numerous, ovate.

Habitat.—Waste places in the South of England.

Biennial; flowering from April to October.

This species is much more palatable than the last as a vegetable, and is commonly cultivated in gardens under the name of *American Cress*; and it has probably escaped from cultivation, and become a naturalized plant. It is frequent on the Continent in moist fields, on banks of rivers, &c.

GENUS XX. ARABIS.—LINN. *Rock-cress*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Siliqua* linear, *valves* flat or convex, with a longitudinal rib or vein. *Calyx* erect. *Stigma* obtuse, entire, or sub-emarginate. *Seeds* oval or orbicular, compressed. *Cotyledons* accumbent—(See Fig. 1, p. 871.)—So named because originally an *Arabian* genus.

1. *A. stricta*, *Huds.* (Fig. 1041.) *Bristol Rock-cress*. Leaves oblong, ovate, the radical ones lyrato-sinuated, obtusely toothed, tapering into a footstalk, the upper ones sessile; racemes of about six flowers; calyx smooth; petals erect; siliqua linear, erect, compressed, the valves with prominent longitudinal veins.

English Botany, t. 614.—English Flora, vol. iii. p. 210.—Hooker, British Flora, ed. 4. vol. i. p. 252.—Lindley, Synopsis, p. 24.

Root tapering, and with numerous branched fibres. *Stems* mostly numerous, erect or ascending, from three to six inches high, round, leafy, simple or branched, smooth above, hairy below, with simple spreading hairs. *Leaves* a dark green, roughish, with simple or forked hairs, the radical leaves numerous, spreading, purplish beneath, deeply toothed or lobed in a lyrate manner, tapering into a footstalk, the upper ones smaller, sessile, distant. *Inflorescence* a terminal lax



1041

Arabis stricta.



1042

Arabis petræa.



1043

Arabis ciliata.



1044

Arabis hirsuta.



1045

Arabis turrita.



1046

Turritis glabra.

raceme of about six flowers, erect. *Calyx* erect, smooth, of four equal ovate oblong purplish pieces. *Corolla* of four ovate oblong white or yellowish petals, about as long again as the calyx. *Stamens* with simple awl-shaped *filaments* and small ovate yellow *anthers*, of two cells. *Stigma* sessile, obtuse. *Fruit* an erect linear smooth siliqua, somewhat compressed, the valves marked with prominent longitudinal veins. *Seeds* ovate, with a narrow margin, winged at the apex.

Habitat.—St. Vincent's rock, near Bristol; rare.

Perennial; flowering in May.

2. *A. petraea*, De Cand. (Fig. 1042.) *Alpine Rock-cress*. Stem erect, smooth; leaves smooth, or slightly hairy, the radical ones obovate, petiolated, deeply toothed or lobed, the upper ones oblong linear, entire, sessile; petals spreading; siliqua slender, linear, spreading; valves with a very slender longitudinal vein.

Hooker, British Flora, ed. 4. vol. i. p. 252.—*A. hispida*, Linn.—English Flora, vol. iii. p. 211.—Lindley, Synopsis, p. 24.—*Cardamine hastulata*.—English Botany, t. 469.—*C. petraea*, Huds.

Root tapering, with slender branched fibres, tufted at the crown. *Stems* mostly several, from three to four inches high, erect, or ascending, simple or branched, slender, round, smooth, or slightly hairy at the base, leafy. *Leaves* dark green, smooth, or slightly hairy, the radical ones numerous, tufted, obovate, on a slender footstalk, toothed or lobed in a lyrate or pinnatifid manner, the upper ones simple, sessile, linear, oblong. *Inflorescence* terminal sub-corymbose racemes, becoming much elongated. *Pedicles* short. *Calyx* of four smooth ovate pieces, with a narrow membranous margin. *Corolla* pale purple or white, with dark veins, the claw narrow, as long as the calyx, the limb spreading. *Stamens* with simple *filaments* and small two celled *anthers*. *Style* sessile, obtuse. *Fruit* slender, narrow, linear, smooth, the valves with very slender longitudinal veins. *Seeds* small, ovate.

Habitat.—Alpine rocks; North Wales, frequent in Scotland, Ross-shire and Sutherland.—*Prof. Graham*.

Perennial; flowering in June and July.

3. *A. ciliata*, Brown. (Fig. 1043.) *Fringed Rock-cress*. Stem erect, smooth; leaves smooth, ciliated on the margins, ovate, oblong, entire or toothed, the radical ones tapering into a short footstalk, the upper sessile, rounded at the base; petals erect; siliqua narrow, linear, compressed, erect; valves with a prominent rib, and slender longitudinal veins.

English Flora, vol. iii. p. 212.—Hooker, British Flora, ed. 4. vol. i. p. 252.—Lindley, Synopsis, p. 24.—*Turritis alpina*, Linn.—English Botany, t. 1746.

Root slender, tapering. *Stem* erect or ascending, from two to four inches high, round, slender, simple, smooth, leafy. *Leaves* a dark green, smooth and shining on both sides, the margins ciliated with

simple hairs, and sometimes they are scattered over the under side, ovate or ovate oblong, the radical ones numerous, crowded, tapering at the base into a short footstalk, often tinged, of a purplish hue, the upper ones sessile, rounded at the base. *Inflorescence* a terminal sub-corymbose raceme, becoming elongated. *Pedicles* slender. *Calyx* ovate oblong, with a narrow membranous margin, smooth. *Corolla* of four ovate erect or slightly spreading white petals, about as long again as the calyx. *Fruit* an erect slender linear siliqua, with a prominent dorsal rib and longitudinal veins, crowned by the obtuse stigma. *Seeds* "linear, impressed with numerous dots."

Habitat.—Gravelly beach near the sea, at Rynville, Cunnamare, on the western point of Bear Island, County of Kerry, and on the shore at Derrinane, Ireland; rocks near Loch Lea, in Glen Esk, Scotland.

Biennial; flowering in July and August.

4. *A. hirsu'ta*, Brown. (Fig. 1044.) *Hairy Rock-cress*. Stem erect, hairy below; leaves oblong, hispid, and toothed, the radical ones tapering into a footstalk, the upper sessile, auriculated or cordate at the base; siliqua erect, linear, compressed, with a prominent dorsal rib and longitudinal slender veins.

English Flora, vol. iii. p. 213.—Hooker, British Flora, ed. 4. vol. i. p. 252.—Lindley, Synopsis, p. 24.—*Turritis hirsuta*, Linn.—English Botany, t. 587.

Root long, tapering, branched. *Stems* mostly several, erect, simple, or branched, about a foot high, round, clothed in the lower part with spreading hairs, nearly smooth above. *Leaves* oblong, rough, with forked hairs, the lower ones numerous, crowded, spreading, tapering into a footstalk of greater or less length, more or less toothed or entire, often purplish, those of the stem sessile, heart-shaped or auriculated at the base, the auricles spreading, mostly more deeply toothed than the lower leaves. *Inflorescence* terminal sub-corymbose racemes, becoming much elongated. *Pedicles* slender, swollen at the top. *Calyx* smooth, of four oblong pieces, with a narrow membranous margin. *Stamens* with slender filaments and small ovate anthers. *Stigma* sessile, obtuse. *Fruit* an erect linear compressed smooth siliqua, the valves with a prominent dorsal rib and slender longitudinal veins. *Seeds* small, brown, with membranous base.

Habitat.—Walls, dry banks, or rocks; frequent in many parts of England, Scotland, and Ireland.

Biennial; flowering in May and June.

This is an extremely variable plant in the hairiness of the leaves and stem, and the hairs are sometimes all simple, at others all forked, and often both on the same plant. The leaves are sometimes quite entire, at others slightly toothed, and often deeply toothed, almost pinnated; the lower leaves are sometimes spatulate, and the upper linear oblong. These variations seem to depend upon the situation of its growth being dry or moist, and its greater or less exposure to the sun.

5. *A. Turrita*, Linn. (Fig. 1045.) *Tower Wall-cress*. Stem erect, downy; leaves oblong, downy, the radical ones petiolated, the upper sessile, cordate, amplexicaul; pedicles long; siliqua long, flat, compressed, with thickened margins; seeds flat, with a narrow membranous margin.

English Botany, t. 178.—English Flora, vol. iii. p. 214.—Hooker, British Flora, ed. 4. vol. i. p. 252.—Lindley, Synopsis, p. 24.

Root tapering. *Stem* erect, from one to two feet high, round, more or less clothed with close soft starry pubescence, simple, rarely branched, leafy. *Leaves* a pale green, more or less clothed with soft close pubescence, especially beneath, the radical leaves oblong, ovate, tapering into a footstalk, the margins somewhat recurved, and unequally toothed, those of the stem elliptic, ovate, deeply cordate at the base, sessile, the lobes embracing the stem, plane, and unequally toothed. *Inflorescence* a terminal sub-corymbose raceme, becoming much elongated, the *pedicles* short, arising from the bosom of a leafy *bractea*. *Calyx* of four oblong pieces. *Corolla* pale sulphur coloured, broadly ovate, tapering into a claw, the limb spreading. *Filaments* with four small ovate glands at the base. *Stigma* small, obtuse, nearly sessile. *Fruit* a recurved siliqua, compressed with a thickened margin about four inches long, smooth. *Seeds* numerous, flat, pale brown, with a narrow membranous margin.

Habitat.—Walls of Trinity and St. John's Colleges, Cambridge, and Magdalen College, Oxford; Cleith Castle, Kinross, Scotland.

Biennial; flowering in May.

This rare and probably introduced species of *Arabis* we find common amongst rocks in shady places in the mountainous districts of Italy, where—

" Oft have I wandering seen strange characters
Of beauty lodged within an insect's wing,
Or 'neath a spurn'd weed's close enveloping;
Hid within modest Nature's secret bars,
(Like a blue night with all its silver stars),
A bright wild world of order and whole spring
Of colourings. Such to sight God's presence bring:
In the least thing which nature makes and mars,
He builds a temple!"

Thoughts in Past Years.

GENUS XXI. TURRITIS.—LINN. *Tower Mustard*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Siliqua* linear, with ribbed or keeled valves. *Stigma* obtuse, entire, or slightly emarginated. *Seeds* in a double row. *Cotyledons* accumbent.—(See Fig. 1, p. 871.)—Name from *turris*, a tower; from the somewhat pyramidal form of the plant.

1. *T. glabra*, Linn. (Fig. 1046.) *Long Podded Tower Mustard*. Stem erect; radical leaves toothed and rough, with branched hairs, the upper smooth, sagittate at the base, amplexicaul; siliqua long, straight, erect.

English Botany, t. 777.—English Flora, vol. iii. p. 215.—Hooker, British Flora, ed. 4. vol. i. p. 252.—Lindley, Synopsis, p. 23.

Root tapering. *Stem* erect, from two to three feet high, round, simple, or slightly branched, leafy, downy at the base, smooth upwards. *Leaves* numerous, the radical ones oblong lanceolate, coarsely toothed or sinuated, rough, with close branched or simple hairs, the upper leaves lanceolate, with an arrow-shaped base, clasping the stem, smooth, glaucous green, entire. *Inflorescence* a terminal sub-corymbose raceme, becoming much elongated. *Flowers* numerous, white, or pale sulphur colour. *Pedicles* slender. *Calyx* oblong, of four pale smooth pieces, with a narrow white border. *Petals* four, oblong, ovate, erect. *Stamens* with simple filaments and ovate anthers. *Style* very short. *Stigma* obtuse. *Fruit* a long slender linear smooth erect siliqua. *Seeds* very small and numerous in each cell.

Habitat.—Fields, banks, and road sides in various parts of England, but not common; Bowling Bay, Scotland.

Annual; flowering in May and June.

GENUS XXII. SISYMBRIUM.—LINN. *Hedge Mustard*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Siliqua* linear, round, or angular, valves with three longitudinal ribs. *Stigma* obtuse, entire, or emarginate. *Calyx* equal at the base. *Seeds* ovate or oblong. *Cotyledons* flat, incumbent.—(See Fig. 1, p. 872.)—Name *σισυμβριον*, applied by the Greeks to a genus of plants, but it is doubtful whether it is this.

1. *S. officinale*, Scop. (Fig. 1047.) *Common Hedge Mustard*. Leaves runcinate, hairy, the lacinie oblong, toothed; siliqua linear, awl-shaped, hairy, erect, close pressed to the stem.

English Flora, vol. iii. p. 196.—Hooker, British Flora, ed. 4. vol. i. p. 254.—Lindley, Synopsis, p. 29.—*Erysimum officinalis*, Linn.—English Botany, t. 735.

Root tapering. *Stem* erect, about two feet high, numerous branched and leafy, round, rough, with deflexed hairs. *Leaves* rough, with pubescence, lyrato-runcinate, the terminal lobe mostly broadly heart-shaped, the lateral ones oblong lanceolate, or linear, all more or less unequally toothed or sinuated, the upper leaves much the narrowest and most slender. *Inflorescence* terminating the stem and branches, in small clusters of yellow sub-corymbose flowers, becoming



1047

Sisymbrium officinale.



1048

Sisymbrium irio.



1049

Sisymbrium sophia.



1050

Sisymbrium allaria.



1051

Sisymbrium thalianum.



1052

Erysimum cheiranthoides.

much elongated racemes. *Calyx* downy, of four small erect pieces. *Corolla* of four linear oblong petals, spreading. *Stamens* with awl-shaped *filaments* and yellow oblong *anthers*. *Stigma* sessile, obtuse. *Fruit* linear, tapering, downy, siliques on short pedicles, close pressed to the stem. *Seeds* small, about six in each cell.

Habitat.—Road sides and waste places; common.

Annual; flowering in June and July.

Formerly this plant enjoyed a great reputation for its medicinal properties, and was esteemed as an expectorant and diuretic, and said to have been found useful in chronic pectoral complaints. Its properties are warm and stimulating, and its juice mixed with honey or sugar was used with advantage in relaxed throats, when stimulating applications were indicated. It is now almost forgotten, except amongst the rural herbalists.

2 *S. Trio*, Linn. (Fig. 1048.) *Broad Hedge Mustard*, *London Rocket*. Leaves runcinate, the lobes oblong, toothed, the terminal ones lanceolate, smooth, as well as the rounded stem; siliques linear, narrow, spreading, on slender pedicles.

English Botany, t. 1631.—English Flora, vol. iii. p. 197.—Hooker, British Flora, ed. 4. vol. i. p. 254.—Lindley, Synopsis, p. 29.

Root tapering and branched. *Stem* erect, about two feet high, round, smooth, or somewhat hairy above, branched and leafy. *Leaves* smooth, pale green, runcinate, the lower ones with the terminal lobe broad, ovate, acute, the lateral ones oblong, or linear acute, all more or less unequally toothed, the upper leaves often linear, arrow-shaped at the base. *Inflorescence* terminal clusters of yellow sub-corymbose flowers, becoming much elongated racemes. *Pedicles* slender, often downy. *Calyx* of four oblong pale mostly downy pieces. *Corolla* of four ovate spreading petals, with a slender linear claw. *Stamens* with awl-shaped *filaments* and yellow oblong *anthers*. *Stigma* sessile, obtuse, notched. *Fruit* narrow, linear, smooth, silique spreading, or nearly erect, the valves distinctly marked with three longitudinal veins. *Seeds* numerous, ovate oblong, pale brown.

Habitat.—Waste places about London, common; Faulburn, Essex; Berwick-upon-Tweed; about Dublin, common.

Annual; flowering in July and August.

This species, readily distinguished from all our others, is said to have grown in such abundance in the spring after the great fire of London, as to cover the ground.

3. *S. Sophi'a*, Linn. (Fig. 1049.) *Fine-leaved Hedge Mustard*, or *Flax-weed*. Leaves doubly pinnatifid, the lobes of the lower ones lanceolate, of the upper linear, downy; calyx erect, as long or longer than the petals.

English Botany, t. 963.—English Flora, vol. iii. p. 197.—Hooker, British Flora, ed. 4. vol. i. p. 254.—Lindley, Synopsis, p. 29.

Root tapering and branched. *Stem* erect, about two feet high, round, simple, or branched, more or less clothed with close soft branched pubescence, leafy. *Leaves* spreading, alternate, doubly pinnatifid, more or less thickly clothed with close soft branched pubescence, the lower leaves with the lobes lanceolate, or ovate, the upper ones narrow, linear. *Inflorescence* a terminal sub-corymbose cluster of small yellow flowers, becoming in fruit much elongated racemes. *Pedicles* slender, spreading. *Calyx* of four oblong yellow pieces, longer or as long as the narrow oblong *petals*. *Stamens* with awl-shaped *filaments* and oblong yellow *anthers*. *Fruit* narrow, linear, smooth, erect, crowned with the small obtuse sessile *stigma*, the *valves* distinctly marked with a dorsal vein, the two lateral ones slender. *Seeds* small, oblong, pale reddish brown.

Habitat.—Waste places; frequent.

Annual; flowering from July to September.

This species was formerly much used as a remedy in dysentery and hysterical affections, and so highly was it esteemed that it obtained the distinguished appellation of "The Wisdom of Surgeons." But if the wisdom of the surgeons of those days was not further extended than to a reliance on the medicinal virtues of this plant, to cure the fractured limbs or lacerated wounds of their patients, that wisdom must have been limited indeed!

4. *S. Alliaria*, Scop. (Fig. 1050.) *Garlic Treacle Mustard*, *Jack by the Hedge*, or *Sauce Alone*. Leaves undivided, petiolated, the lower kidney-shaped, sinuato-dentate, the upper ovate, heart-shaped, and more acutely toothed; calyx erect; petals spreading.

Erysimum Alaria, Linn.—English Botany, t. 796.—Hooker, British Flora, ed. 4. vol. i. p. 254.—English Flora, vol. iii. p. 201.—*Alliaria officinalis*, De Cand.—Lindley, Synopsis, p. 29.

Root fibrous. *Stem* erect, from one to two feet high, simple or branched, leafy, round, smooth. *Leaves* petiolated, pale green, smooth, the lower ones kidney-shaped, grossly and obtusely toothed in a sinuated manner, the upper leaves more heart-shaped and acutely toothed. *Inflorescence* a terminal sub-corymbose raceme of white flowers, becoming much elongated and racemose. *Calyx* erect, ovate, pale green. *Corolla* of four ovate spreading petals, as long again as the calyx, tapering at the base into a claw. *Stamens* with awl-shaped *filaments* and ovate *anthers*. *Fruit* a linear erect rounded siliqua, crowned by the sessile *stigma*, the *valves* distinctly three ribbed. *Seeds* small, ovate.

Habitat.—Hedges, banks, and shady places; frequent.

Biennial; flowering in May and June.

This plant has a strong garlic taste and smell, and in some parts of the country used by the people as a pot-herb and sauce, being, it is said, excellent with boiled mutton, and any kind of salt meats.

Its medicinal properties are diuretic and antiscorbutic, and it has been given with advantage in some asthmatical affections. Sheep and cows feed upon it, though it is refused by other cattle; if it is eaten abundantly, it gives the milk of the cow an unpleasant taste, and imparts the same flavour to mutton.

5. *S. thalia'num*, Gaudin. (Fig. 1051.) *Common Thale-cress*. Stem erect, branched; leaves obscurely toothed, hairy, the radical ones oblong, petiolated, the upper ones lanceolate, sessile; siliqua slender, linear, ascending; calyx erect.

Hooker, British Flora, ed. 4. vol. i. p. 254.—*Arabis thaliana*, Linn.—English Botany, t. 901.—English Flora, vol. iii. p. 209.—Lindley, Synopsis, p. 24.

Root slender, tapering, and branched. *Stem* erect, round, striated, branched, and more or less hairy, especially below. *Leaves* more or less clothed with starry pubescence, the radical ones numerous, tufted, oblong lanceolate, tapering into a footstalk, more or less toothed, the upper ones lanceolate, mostly entire. *Inflorescence* terminal sub-corymbose racemes, much elongated after flowering. *Calyx* of four oblong pieces, pale green. *Corolla* of four white ovate spreading petals, tapering at the base. *Stamens* with simple filaments and ovate anthers. *Stigma* small, obtuse, nearly sessile. *Fruit* a slender smooth siliqua, ascending on a slender spreading pedicle, the valves with a dorsal rib and obscure longitudinal veins, more resembling the genus *Arabis*, but the cotyledons of its small seeds are incumbent, and not accumbent, as in that genus.

Habitat.—Walls, dry banks, and sandy places; common.

Annual; flowering in April and May.

GENUS XXIII. ERYSIMUM.—LINN. *Treacle Mustard*

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Siliqua* linear, quadrangular. *Stigma* obtuse, entire, or emarginate. *Calyx* erect. *Seeds* with flat oblong incumbent cotyledons.—(See Fig. 2, p. 872.)—Name from *εγωω*, to cure; so called on account of the supposed medicinal virtues of some of the species.

1. *E. cheiranthoides*, Linn. (Fig. 1052) *Worm Seed Treacle Mustard*. Leaves lanceolate, entire, or obscurely toothed, rough, with stellated hairs; pedicles twice as long as the calyx, spreading; siliqua erect, quadrangular, compressed; stigma obtuse, nearly sessile.

English Botany, t. 942.—English Flora, vol. iii. p. 200.—Hooker, British Flora, ed. 4. vol. i. p. 254.—Lindley, Synopsis, p. 30.

Root tapering and branched. *Stem* erect, from one to two feet high, angular, simple or branched, leafy, rough, with close pressed

hairs, slender. *Leaves* lanceolate, sessile, dark green, rough, with close branched or starry pubescence, the margins entire, or slightly toothed. *Inflorescence* an erect sub-corymbose raceme, becoming after flowering much elongated and lax, the *pedicles* spreading when in fruit, erect in flower, the *calyx* of four equal oblong narrow pieces, with a pale narrow membranous margin. *Corolla* of four yellow broadly ovate notched petals, the claw tapering, white. *Stamens* with awl-shaped *filaments* and small ovate yellow *anthers*. *Stigma* obtuse, nearly sessile. *Fruit* an erect quadrangular siliqua, somewhat compressed, more or less scattered over with close pressed stellated hairs.

Habitat.—Cultivated fields, gardens, and waste places.

Annual; flowering in July and August.

The seeds are bitter and acrid, and have been used for destroying intestinal worms in children; but are not now applied to any use. The whole plant is bitter and acrid, and was formerly used in medicinal compounds, but is now almost forgotten.

2. *E. orient'le*, Brown. (Fig. 1053.) *Hare's-ear Treacle Mustard*. Leaves entire, smooth, glaucous, the radical ones oblong, the upper cordate, amplexicaul; siliqua long, spreading, quadrangular; stigma obtuse, sessile.

English Flora, vol. iii. p. 202.—Hooker, British Flora, ed. 4. vol. i. p. 254.—Lindley, Synopsis, p. 30.—*Brassica orientalis*, Linn.—English Botany, t. 1804.

Root small, tapering. *Stem* erect, from one to two feet high, round, smooth, glaucous, simple or branched. *Leaves* a smooth glaucous green, succulent, quite entire, the radical ones oblong, obovate, the upper oblong, heart-shaped at the base, sessile, and clasping the stem. *Inflorescence* a much elongated terminal raceme, of a few pale yellow or cream-coloured flowers, the *pedicles* about as long as the calyx spreading. *Calyx* of four narrow oblong erect smooth pieces. *Corolla* of four ovate somewhat spreading *petals*, tapering into a narrow claw. *Stamens* with slender *filaments* and small ovate *anthers*. *Stigma* obtuse, sessile. *Fruit* a quadrangular smooth siliqua, spreading, or somewhat curved, from two to three inches long.

Habitat.—Fields and on cliffs near the sea, rare; Essex, Suffolk, and Sussex.

Annual; flowering in June.

GENUS XXIV. BRASSICA.—LINN. *Cabbage Turnip*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Siliqua* linear or oblong, with convex valves, having a longitudinal dorsal rib, and sometimes with lateral branched



1053

Erysimum orientale.



1054

Brassica oleracea.



1055

Brassica campestris.



1056

Brassica napus.



1057

Brassica rapa.



1058

Brassica monensis.

veins. *Calyx* erect. *Seeds* globose. *Cotyledons* incumbent, channeled—(See Fig. 3, p. 872)—or conduplicate.—Name derived from the Celtic *Bresic*, or *cabbage*.

1. *B. olera'cea*, Linn. (Fig. 1054.) *Sea Cabbage*. Root tapering; stem cylindrical, fleshy; leaves glaucous, smooth, fleshy, the lower ones lyrate, petiolated, the upper oblong, sessile, waved or sinuated; calyx erect, close.

English Botany, t. 637.—English Flora, vol. iii. p. 219.—Hooker, British Flora, ed. 4. vol. i. p. 255.—Lindley, Synopsis, p. 32.

Root tapering, and much branched. *Stem* cylindrical, smooth, glaucous, from one to two feet high, branched above and leafy, below scarred by the insertions of the fallen leaves. *Leaves* somewhat fleshy, covered over with a blue powdery bloom, which may be rubbed off by the finger, the lower leaves large, lyrate, waved and sinuated, on a thick fleshy footstalk, the upper sessile, oblong, obtuse, waved, sinuated or toothed. *Inflorescence* terminal corymbose racemes, much elongated after flowering, *pedicles* spreading. *Calyx* of four oblong obtuse erect pieces, smooth. *Corolla* of four ovate petals, with a short claw, of a bright lemon colour. *Stamens* erect, the *filaments* awl-shaped, and the *anthers* ovate, two celled. *Fruit* an erect cylindrical siliqua, crowned with the obtuse almost sessile *stigma*, the *valves* with a prominent dorsal rib. *Seeds* rather large, globose, dark brown.

Habitat.—Cliffs by the sea in Devonshire, Dover, Wales, Cornwall, Yorkshire, and in the Firth of Forth, Scotland; near Youghal, Ireland.

Biennial; flowering in May and June.

This plant is the original of the valuable cabbage and cauliflower, so well known as garden and agricultural vegetables, and perhaps no one furnishes a better example of the number of varieties that may be produced by cultivation, and the labour of man. Nothing can be more striking than the difference exhibited between the wild plant which we have described, and the garden or cow-cabbage, or the red cabbage of the market; and still more extraordinary is the difference between it and the cauliflower and brocoli, both purple and white. To so great a size do some of the cabbage varieties attain, that they have more the port and appearance of trees, growing from twelve to sixteen feet high, and crowned by a tuft of leaves; others on a short stem form so large a head as to almost fill a bushel measure; and those of the brocoli tribe vary in the same extraordinary manner. De Candolle has arranged the varieties under different heads, which we shall transcribe in a tabular form; these are disposed in tribes, and subdivided into their varieties.

TRIBES.		VARIETIES.	
Brassica oleracea.	<i>Sylvestris.</i>	Wild cabbage, or sea colowort.	
	<i>Racemosa</i>	{ Stem branched, leaves sinuato, pinnatifid. }	Cavalier, or one thousand headed.
	<i>Vulgaris.</i>	{ Stem simple, leaves sinuato-pinnatifid. }	Hundred leaved.
		viridis	Green ditto.
		purpurascens.	Red open headed.
	<i>Quercifolia</i>	{ Stem simple, leaves lobed and cut, the lobes oblong. }	Oak leaved borecole.
	<i>Sabellica.</i>	{ Stem simple, leaves sinuato-lobate, the lobes much divided. }	Scotch kale, or Siberian borecole.
	<i>Accephala</i> Kales.	pinnata	Jagged kale.
		purpurascens.	Purple ditto.
		versicolor	Variegated ditto.
		laciniata	Ragged Jack.
	<i>Palmifolia</i>	{ Stem simple, leaves sinuato-repandis. }	Palm leaved kale.
	<i>Costata</i> ..	{ Stem low, leaves sinuato-repandis, the mid-rib thickened. }	Ribbed leaved kale.
	<i>Nepenthi-</i> <i>formis.</i> ..	{ Ribs of the leaves appendiculated, with cup-shaped leaflets. }	Cup leaved kale.
	<i>Vulgaris.</i>	{ Heads terminal roundish lax. }	Savoy cabbage.
		viridis.	Green ditto.
		præcox	Early Savoy.
		humilis	Dwarf ditto.
	<i>Bullata</i> Savoys.	Turionensis	Turaine ditto.
		Aurita	Eared cabbage.
Brassica capitata.	<i>Oblonga</i> ..	Heads terminal, oblong.	Winter Savoy.
	<i>Major</i>	Head terminal, large.	Giant ditto.
	<i>Gemmifera</i>	{ Heads numerous, small, terminal, and in the axis of the leaves. }	Brussels sprouts.
	<i>Depressa</i> ..	{ Leaves in a close terminal roundish depressed head. }	Drum headed.
	<i>Spherica</i> ..	{ Leaves in a close terminal globose head. }	Common round headed.
		alba.	White Scotch
		rubra	Red Aberdeen.
		Subrubens	Blush cabbage.
	<i>Capitata</i> Cabbages.	<i>Obovata</i> ..	{ Leaves in a close terminal obovate head. }
			Pentonville cabbage.
		<i>Elliptical</i>	{ Leaves in a close terminal elliptical head. }
			York Cabbage.
		<i>Coni a</i>	{ Leaves in a close terminal conical head. }
			Sugar-loaf or Battersca cabbage.
	<i>Caulorapa</i> Kolds, or turnip stemmed Cabbage.	<i>Communis</i>	Leaves plane
			alba.
			purpurascens.
			Violet ditto.
		<i>Crispa</i>	{ Leaves crisped and fimbriated. }
			Curled or fringed leaved ditto.
Brassica botrytis.	<i>Cauliflora</i>	{ Stem short, leaves oblong, glaucous, heads terminal, crowded. }	Cauliflower.
		alba.	White ditto.
		rubra	Red ditto.
	<i>Asparagoides</i>	{ Stem tall, leaves elongate, glaucous, branches terminating in heads. }	Brocoli.
		communis	White.
		violacea	Purple or Maltesc.

Besides these, many other varieties might be added, which are named according to the colour of the heads, their shape, &c. The mode of their cultivation, value, and uses, are so well known, as not to need here any notice, and the enormous size to which they are capable of being produced by care and attention in their cultivation, is exemplified at almost every horticultural and agricultural exhibition.

2. *B. campestris*, Linn. (Fig. 1055.) *Common Will Navew, or Navet*. Root tapering; stem cylindrical; leaves glaucous, fleshy, the lower ones lyrate, lobed, and toothed, rough, with hairs, the upper oblong, heart-shaped, clasping the stem.

English Botany, t. 2234.—English Flora, vol. iii. p. 218.—Hooker, British Flora, ed. 4. vol. i. p. 256.—Lindley, Synopsis, p. 32.

Root tapering, small and hard. *Stem* erect, about two feet high, round, branched, glaucous, rough below, with bristly hairs from a bulbous base, mostly smooth above. *Leaves* numerous, glaucous green, the radical ones lyrate, rough, especially on the veins and ribs, with bristly hairs, the terminal lobe broad, unequally toothed and lobed, the lower lobes oblong, toothed, unequal, the upper leaves oblong, heart-shaped at the base, sessile, and embracing the stem, entire, sinuated or toothed, smooth, or less hairy than the lower ones. *Inflorescence* terminal sub-corymbose racemes, becoming much elongated after flowering. *Calyx* somewhat spreading, of four oblong pieces. *Petals* four, bright yellow, the limb roundish oblong, the claw narrow, dilated upwards. *Stamens* with awl-shaped filaments. *Fruit* a spreading siliqua, cylindrical, with strongly keeled valves and obscure lateral veins, pointed with the slender tapering persistent style, tipped with the small obtuse stigma. *Seeds* globose, smooth, dark brown.

Habitat.—Cultivated fields and the banks of streams; not unfrequent in various parts of the country.

Annual; flowering in June and July.

Of these species also there are some very important tribes which are grown by the horticulturist and farmer.

1. The OLEIFERA. *The root spindle-shaped, stem elongated.* Of this species there are two varieties:—

autumnalis.

præcox.

2. PABULARIA. *The root spindle-shaped, and stem short.*

3. NAPO-BRASSICA. *The root tumid, like a turnip.*—

communis, white and purple.

Rutabaga.

The *Oleifera*, *Cole-seed*, *colza* or *colsa*, is cultivated to a considerable extent, especially in some parts of the Continent, for the sake of the oil which its seeds yield by expression in large quantities; and the refuse both of the seeds and plant are useful as fodder for cattle and manure.

The *Pabularia* is a low much branched productive plant, but is only cultivated as fodder for sheep and cattle chiefly on the Continent.

The *Napo-Brassica* are curious varieties, and so called from their seeming to be intermediate plants between the turnip and cabbage tribes. The stem is swollen into a globose fleshy tuber, sweet, crowned by the leaves, and it is white, or of a purplish colour. This variety is seldom cultivated here, but on the Continent it is common, and used

chiefly for making soups. The variety *Rutabaga* is well known by the name of *Swedish turnip*; it is extensively cultivated in many parts of the country, and is esteemed more as food for cattle than as a culinary vegetable.

3. *B. Na'pus*, Linn. (Fig. 1056.) *Wild Navette*, *reps*, or *rape*. Root tapering; stem erect, round, smooth; leaves smooth, glaucous, the lower ones lyrate and toothed, the upper lanceolate, heart-shaped, clasping the stem; siliques spreading.

English Botany, t. 2146.—English Flora, vol. iii. p. 217.—Hooker, British Flora, ed. 4. vol. i. p. 255.—Lindley, Synopsis, p. 32.

Root tapering, fleshy, becoming by cultivation more or less swollen at the crown. Stem erect, about two feet high, round, smooth, striated, branched, glaucous. Leaves smooth, a glaucous green, especially beneath, the lower ones lyrate, with toothed and sometimes sinuated lobes, becoming pinnatifid, the upper ones lanceolate, with a heart-shaped base, embracing the stem, entire or crenated. Inflorescence elongated racemes, of numerous flowers, the pedicels slender, spreading. Calyx of four yellow oblong pieces, close at the base, spreading above. Petals bright yellow, the limb roundish, ovate, the claw slender, linear. Stamens with awl-shaped filaments, longer than the claw. Fruit spreading, round, slender siliqua, somewhat headed by the seeds, terminated by the slender tapering style, and crowned by the small obtuse stigma. Seeds globose, brownish.

Habitat.—Cultivated fields and waste places; frequent.

Biennial; flowering in May and June.

It is this plant which is commonly known by the name of Rape, and is cultivated in many parts of the country for the seeds, from which the oil, known by the name of Rape-oil, is expressed. It is also cultivated as fodder for sheep and cattle. There are several varieties of it, having the stem swollen into a fleshy globose tuber, resembling a turnip; they are much cultivated on the Continent, and more esteemed than turnips for the making of soups, as they have a stronger flavour. The varieties distinguished by the colour of the roots are the white, the yellow, and the black, and from their varying in colour they are much used in the garnishing of dishes, &c.

4. *B. Ra'pa*, Linn. (Fig. 1057.) *Common Turnip*. Root orbicular, fleshy; stem erect, round, smooth; leaves a glaucous green, the lower ones lyrate, rough, the upper ones ovate lanceolate, heart-shaped, smooth; calyx spreading.

English Botany, t. 2176.—English Flora, vol. iii. p. 217.—Hooker, British Flora, ed. 4. vol. i. p. 255.—Lindley, Synopsis, p. 32.

Root fleshy, sweet, and tuberous at the top, tapering and fibrous at the base, oblong, round, or depressed, white or purplish externally. Stem erect, about two feet high, leafy, round, smooth, branched. Leaves dark green, the radical ones lyrate, with a broad roundish

terminal lobe, toothed and rough, with bristly hairs, the upper ones heart-shaped, lanceolate, clasping the stem, quite smooth, and somewhat glaucous, and entire, or slightly toothed. *Inflorescence* terminal lax paniculated racemes, of pale yellow flowers, in sub-corymbose tufts. *Calyx* of four oblong smooth yellowish pieces, close at the base, spreading above the middle. *Petals* four, the limb roundish, ovate, spreading. *Stamens* with awl-shaped *filaments*, ascending. *Fruit* a cylindrical silique, about an inch long, tapering at the beak, and crowned by the roundish obtuse stigma. *Seeds* globose, brownish red, acrid, bitterish.

Habitat.—Borders of fields and waste places; frequent.

Biennial; flowering in April and May.

Turnips are too well known as valuable food both for man and cattle to need any comment, and their mode of cultivation in the rotation of crops, and the means of producing the greatest weight of food, is not necessary here to describe. The varieties usually found in cultivation are arranged under two heads, according to the shape of the turnip; as the *Depressa*, the form of which is roundish, depressed, more or less flatly; of these there are the white, yellow, black, purple, and green, all of which, except the black, (which is seldom seen, if not extinct), are in common cultivation. The *Oblonga*, the form of which is oblong, gradually tapering into the slender root; of these there are the same common varieties as in the other. The young tender branches and leaves are cropped in the spring, and used as a pot herb, especially on the Continent, and are highly esteemed as an excellent antiscorbutic vegetable; they are somewhat bitter, which to some people, however, is by no means unpleasant. They require well boiling, and in a large quantity of water to render them wholesome. During the season these, as well as cauliflowers and brocoli, &c., are boiled and sold at the corners of most of the frequented streets in Rome; and if we may judge by the appearance of the portly dames who preside over these public kitchens, it must be a profitable business; but it is not vegetables alone that they cook and vend, but fish and fritters of various kinds fried, or rather boiled, in oil or lard.

5. *B. Monen'sis*, Brown. (Fig. 1058.) *Isle of Man Cabbage*. Root hard, woody; stem slender, smooth, nearly leafless; leaves pinnatifid, smooth, glaucous; lobes linear, distant, toothed; silique with a one to three seeded beak.

English Flora, vol. iii. p. 220.—Hooker, British Flora, ed. 4. vol. i. p. 256.—Lindley, Synopsis, p. 32.—*Sisymbrium monense*, Linn.—English Botany, t. 962.

Root long, slender, tapering, woody. *Stems* mostly several from the same root, ascending about a foot high, round, simple, or branched, smooth, or slightly hairy below. *Leaves* pinnatifid, with channeled somewhat hairy footstalks, the lobes opposite and alternate, oblong,

distant, entire, or toothed, smooth, or slightly hairy, dark green, the radical ones numerous, those of the stem much smaller, very distant, *Inflorescence* terminal sub-corymbose racemes, becoming much elongated in fruit. *Calyx* linear, oblong, closed at the base, more or less spreading upwards, smooth, yellowish. *Petals* four, pale yellow, the limb oblong, tapering into a claw. *Stamens* with awl-shaped *filaments*, erect. *Fruit* a long linear angular siliqua, veiny, terminating in a long tapering beak, crowned by the obtuse stigma. *Seeds* numerous in each cell, and from one to three in the beak.

Habitat.—On the isles and shores of the river Clyde, and Lorn, Scotland, and on both sides of the Irish channel.

Perennial; flowering in June and July.

The whole plant, when bruised, has a pungent somewhat fœtid odour; but it is greedily sought after by sheep and cattle, and it is probable that if cultivated in the sandy wastes near the sea, it would be found a profitable and valuable article of food. It requires a light soil, and after being cropped by cattle, it puts out numerous stems and leaves, and thus would form a pasture, which, from its woody roots penetrating deep in the soil, would be enabled to bear the drought of summer, and rendering it, therefore, so much more valuable in a sandy soil than any other.

6. *B. Chei'ranthus*, Vill. *Wallflower Cabbage*. "Leaves stalked, hispid, all deeply pinnatifid; lobes oval-oblong, unequally toothed, in the upper one linear; base of the stem hispid; pods cylindrical; the valves three nerved; the beak one to two seeded."

Hooker, *British Flora*, ed. 4. vol. i. p. 256.—Bab. *Prim. Fl. Sarn.* ined.

"The seeds in the rostrum distinguish this plant from all the British species, except *B. monensis*; but that has nearly a leafless glabrous, and usually prostrate stem. In this plant the stems are upright."—Babington.

Habitat.—Sands of St. Aubin's Bay, Jersey.—Babington and Christy.

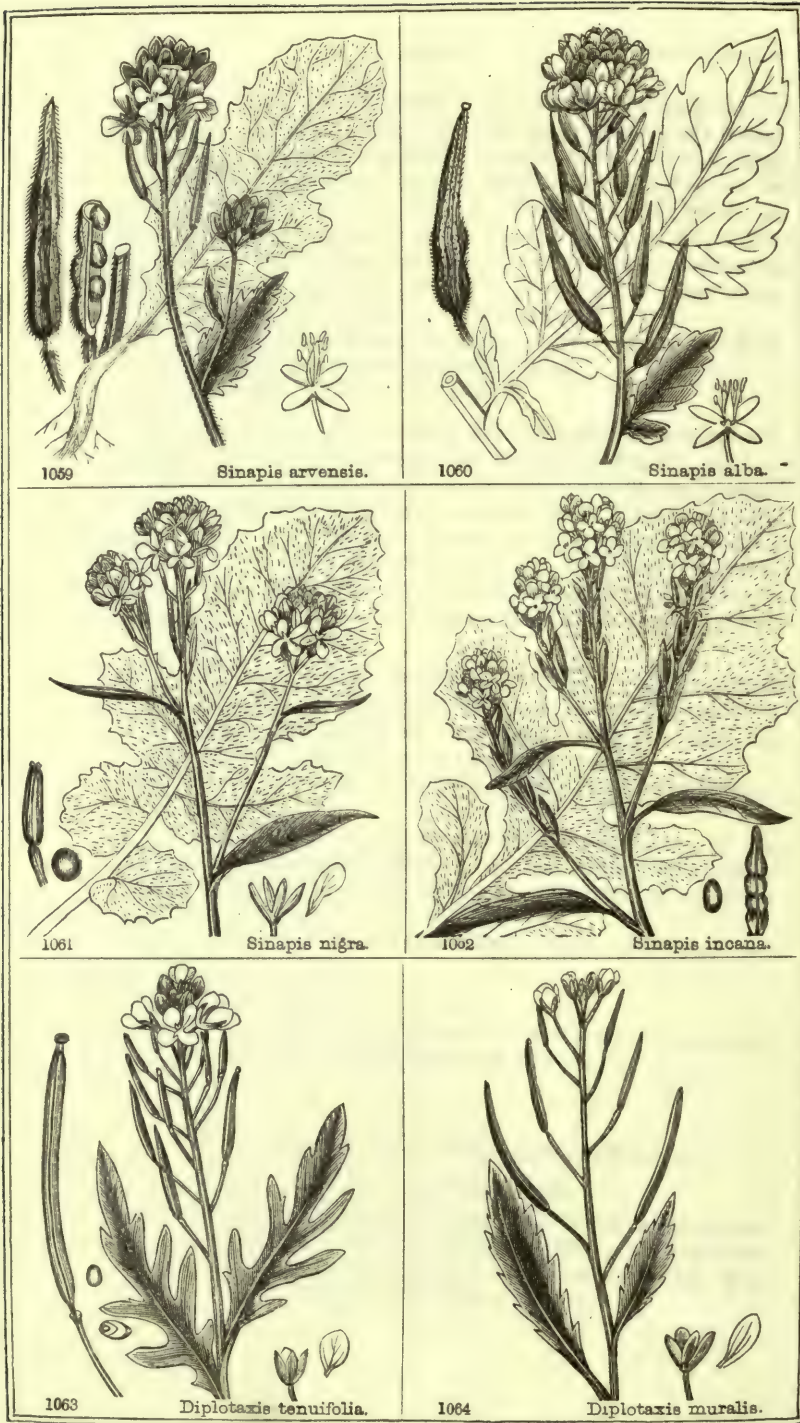
Biennial (?) flowering in July.

Not having seen authentic specimens of this plant, we have given its description and remarks from the *British Flora*.

GENUS XXV. SINAPIS.—LINN. *Mustard*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Siliqua* linear, or oblong, with convex valves, having three or five longitudinal ribs. *Calyx* spreading. *Seeds* globose. *Cotyledons* incumbent, channeled, conduplicate.—(See Fig. 2, p. 872.)—Name from the Greek σινάπι.



1. *S. arvensis*, Linn. (Fig. 1059.) *Wild Mustard, Charlock*. Siliqua cylindrical, turgid, knotty; valves with three prominent ribs, longer than the two edged beak; calyx spreading horizontally; leaves rough, the radical ones sub-lyrate and toothed, the upper sessile, ovate.

English Botany, t. 1748.—English Flora, vol. iii. p. 221.—Hooker, British Flora, ed. 4. vol. i. p. 256.—Lindley, Synopsis, p. 33.

Root tapering. *Stem* erect, about two feet high, round, striated, rough, with reflexed bristles, branched, mostly tinged with purple. *Leaves* dark green, rough, with rigid bristles, the lower ones petiolated, somewhat lyrate, the lobes toothed unequally, the upper ones ovate, sessile, unequally toothed, sometimes lobed. *Inflorescence* terminal sub-corymbose clusters of bright yellow flowers, becoming much elongated after flowering. *Calyx* of four oblong horizontally spreading pieces, of a pale yellow colour. *Petals* four, obovate or heart-shaped, tapering into a claw. *Stamens* with awl-shaped filaments, the anthers ovate, two celled. *Fruit* a cylindrical knotty siliqua, rough, with short bristles, the valves each with three prominent ribs, the beak compressed, furrowed, about half as long as the valves. *Seeds* globose, brown.

Habitat.—Corn fields and cultivated or waste places; frequent.

Annual; flowering in May and June.

This is an extremely common plant in the light sandy soils of some parts of the country, and a very troublesome weed; for oft

“ O’er the young corn the *Charlock* throws a shade,
And clasping Tares cling round the sickly blade.”

The seeds possess acrid pungent properties, but in a less proportion than those of the following species, and of a less agreeable flavour, and consequently they are not cultivated for use, though often mixed with the others.

2. *S. alba*, Linn. (Fig. 1060.) *White Mustard*. Siliqua cylindrical, turgid, the valves with five prominent ribs, shorter than the two edged beak; calyx spreading horizontally; leaves pinnatifid, with broadish unequally toothed lobes.

English Botany, t. 1677.—English Flora, vol. iii. p. 222.—Hooker, British Flora, ed. 4. vol. i. p. 256.—Lindley, Synopsis, p. 33.

Root tapering, small. *Stem* erect, from one to two feet high, striated, branched and leafy, rough, with reflexed hairs. *Leaves* rough, a dark bright green, all pinnatifid, with broad ovate lobes, unequally toothed or sinuated, the terminal leaflet mostly three lobed. *Inflorescence* terminal sub-corymbose bright yellow flowers, becoming much elongated racemes when in seed. *Calyx* of four linear horizontally spreading pale yellowish green pieces. *Petals* of four obovate spreading pieces, tapering into a claw. *Stamens* with slender filaments. *Fruit* a cylindrical rough siliqua, the valves short, tumid, striated, with five prominent ribs, terminated by a compressed tapering

beak, as long or longer than the valve. *Seeds* not very numerous, globose, yellow.

Habitat.—Waste and cultivated places; frequent.

Annual; flowering in July.

This is the species usually cultivated and used when in a very young state, as an early spring salad, and is mostly joined with *Cress*, the young plants of *Lepidium sativum*. The seeds of this and the following species are used for making the mustard powder of commerce.

According to the analysis of John, the seeds of the White Mustard contain

- | | |
|---------------------------|-------------------------------|
| 1. An acrid volatile oil. | 5. A little gum. |
| 2. A yellow fixed oil. | 6. Liguine. |
| 3. Brown resin. | 7. Albumen. |
| 4. A very little extract. | 8. Phosphoric acid and salts. |

From the experiments of Henry and Garot, the seeds contain a peculiar acid, which has been named *sinapin*, and that upon it the active properties of the seeds depend. The volatile oil is clearly shown not to be formed in the seeds without the presence of water. If the seeds are powdered, and then strongly pressed, the fixed oil is obtained; and if the residue be distilled in an alembic, the volatile oil is carried over with the water, and may thus be obtained in great purity; this Dumas and Pelouze analyzed, and found to consist of

Sulphur.....	20.26
Carbon	49.53
Hydrogen	5.02
Azote	13.45
Oxygen	11.74

100.00

The oil expressed from the seeds of Mustard has an amber colour, is without smell, has but little taste, and is rather thicker than olive oil. The seeds of the White Mustard produce about thirty-six per cent. of oil, while that of the black give only about eighteen per cent., but they contain more of the volatile oil; hence it will be seen that when the Mustard is grown for the sake of the fixed oil, the *S. alba* is the most productive; but when it is grown for the purpose of making the Mustard Powder, the *S. nigra* is the best. The fixed oil of either of these species is excellent for the soap manufacturer, and is now used in preference to the oil of rapeseed. The marce or cake left after the oil is expressed from it, is much more acrid than it was in the original condition, by the loss of so much bland tasteless matter, and it is in that state powdered and formed into the common condiment, known in the shops by the name of *Durham Mustard*. Besides being used as a seasoner of food, powdered Mustard is much used medicinally in the form of a poultice, as a counter irritant in various affections; and as the irritating quality of the powder depends upon the presence of the

sinapin and volatile oil, it is rendered most active when mixed with vinegar and warm water, and not spirits of wine or brandy, as these prevent the formation of the volatile oil. The seeds of the White Mustard have been considered a valuable stimulating cathartic; and in some cases when the bowels are weak and require a stimulating aperient, one or two table spoonsful of the seeds, swallowed whole early in the morning, have been found useful. From what we have above stated of the properties of these seeds, it will be seen that their action depends upon the presence of the *sinapin*, and that as the seeds pass along the alimentary canal, they absorb moisture; and this, combining with the *sinapin*, forms the stimulating volatile oil, which is gradually evolved, but rendered milder by its admixture with the oil and mucilage, &c. of the other parts of the seed. This mode of taking the seeds, however, is not without great objections, and cases have been reported where from their lodgment in the bowels they have produced inflammation, ulceration of the intestines, and death, and as many other equally good and unobjectionable medicines are known having the same properties, the Mustard seeds in this form are justly neglected.

3. *S. nigra*, Linn. (Fig. 1061.) *Common Mustard*. Siliqua smooth, quadrangular; style short, quadrangular, erect, close pressed to the stem; the lower leaves rough, lyrate, and toothed, the upper linear, lanceolate, entire, smooth.

English Botany, t. 969.—English Flora, vol. iii. p. 222.—Hooker, British Flora, ed. 4. vol. i. p. 256.—Lindley, Synopsis, p. 33.

Root small, tapering. *Stem* erect, from three to four feet high, round, smooth, branched and leafy, the lower leaves large, lyrate, lobed or sinuated, toothed, rough, with short rigid hairs, the upper ones linear, lanceolate, spreading or drooping, petiolated, smooth, entire. *Inflorescence* terminal and lateral sub-corymbose racemes of bright yellow flowers, much elongated after flowering. *Calyx* of four oblong yellowish pieces, widely spreading. *Petals* roundish, ovate, tapering into a claw. *Stamens* as long as the calyx. *Fruit* a small obtusely quadrangular siliqua, smooth, and nearly even, crowned by the short quadrangular style, and obtuse stigma. *Seeds* not very numerous, yellowish brown, globose.

Habitat.—Waste places, road sides, &c.

Annual; flowering in June.

The seeds of this species possess similar properties to the last, but are more acrid and pungent in its flavour, and contain less of the fixed oil.

4. *S. inca'na*, Linn. (Fig. 1062) *Hoary Mustard*. "Pods appressed, turgid, with a short one seeded beak; leaves lyrate, hispid, cauline ones linear, lanceolate; stem much branched."

Hooker, British Flora, ed. 4. vol. i. p. 257.—Prim. Fl. Sarn. ined.

"Pods glabrous or hairy, with a glabrous beak, each of its valves with one nerve. *Seeds* ovate, compressed."—*Babington*.

Habitat.—On the Quenvais, Jersey, but rare.

Biennial ; flowering in July and August.

This plant we do not know as a native of Britain, and have given its description from Hooker. It is found frequently in the Southern parts of Europe, and from a specimen collected in France our drawing is made.

GENUS XXVI. DILOTAXIS.—DE CAND.

Wall Mustard.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Siliqua* linear, or linear lanceolate, valves convex, with a longitudinal rib. *Calyx* spreading. *Seeds* ovate or oblong, compressed. *Cotyledons* incumbent, channeled, conduplicate.—(See Fig. 3, p. 872).—Name from διπλος, double; and ταξις, order; so called on account of the seeds being in two rows.

1. *D. tenuifolia*, De Cand. (Fig. 1063.) *Fine-leaved Diplotaxis*, or *Mustard*. *Siliqua* linear, smooth, erect, on long slender pedicles; styles short; leaves smooth, lanceolate, the lower ones oblong, lanceolate, pinnatifid, with oblong entire or toothed lobes; stem smooth.

De Cand. Prod. 1. p. 222.—Lindley, Synopsis, p. 33.—*Sisymbrium tenuifolium*, Linn.—English Botany, t. 525.—*Sinapis tenuifolia*, Br. English Flora, vol. iii. p. 223.—Hooker, British Flora, ed. 4. vol. i. p. 257.

Root tapering, somewhat woody. *Stem* erect, from one to two feet high, round, smooth, branched, woody at the base. *Leaves* numerous, smooth, dark glaucous green, somewhat fleshy, the lower ones oblong, lanceolate, petiolated, irregularly sinuated and lobed in a pinnatifid manner, and the lobes are oblong, or linear and toothed, or cut, or entire. *Inflorescence* sub-corymbose clusters of pale lemon coloured flowers, of an unpleasant odour, in fruit much elongated lax racemes. *Pedicles* long, spreading, the *calyx* of four oblong spreading pieces, somewhat hairy at the apex. *Petals* roundish, ovate, tapering into a short claw. *Fruit* a smooth linear erect *siliqua*, sessile upon the pedicle, or with a short stalk, the valves with a prominent dorsal rib, the *style* short, thick, crowned by the obtuse *stigma*, depressed and emarginate. *Seeds* ovate, pale brown, disposed in two rows in each cell.

Habitat.—Old walls. In the South, South-West, and East of England; at London, Bristol, Yarmouth, Chester, Coast of Fife, Scotland.

Perennial; flowering in July and August.

The whole plant, when bruised, has a very disagreeable odour and acrid taste. It varies considerably in the stem being more or less branched, and the leaves more or less cut in a pinnatifid or bi-pinnatifid manner, with ovate, linear, entire or toothed lobes. It is much more frequent on the Continent than with us, and grows abundantly on many of the ruins and old walls of Rome.

2. *D. muralis*, De Cand. (Fig. 1064) *Sand Diplotaxis*, or *Mustard*. Siliqua linear, smooth, erect, on long spreading pedicles; style short; leaves obovate, petiolated, sinuated, the lower ones often sub-lyratopinnatifid; stems spreading, hairy below.

De Cand. Prod. 1. p. 222.—Lindley, Synopsis, p. 33 —*Sisymbrium murale*, Linn.—English Botany, t. 1090.—*Sinapis muralis*, Br.—English Flora, vol. iii. p. 224.—Hooker, British Flora, ed. 4. vol i. p. 257.

Root tapering. *Stem* mostly branched from the base and spreading, round, and more or less clothed with reflexed hairs. *Leaves* petiolated, smooth, oblong, obovate, or broadly lanceolate, obtusely toothed, sinuated irregularly, and the lower ones often somewhat lyrate, sometimes, though rarely, they are slightly hairy. *Inflorescence* a few flowered sub-corymbose raceme, becoming much elongated after flowering, *pedicles* long, slender, spreading. *Calyx* of four oblong spreading pieces. *Petals* four, ovate, tapering into a claw, pale lemon colour. *Fruit* linear, spreading, smooth, sessile on the pedicle, the *valves* with a prominent dorsal rib. *Style* short, crowned by the obtuse somewhat dilated stigma, and more or less notched. *Seeds* ovate, disposed in two rows, but often interrupted.

Habitat.—Sandy places in the South and South-West of England; the Isle of Thanet, and Dumfermline, Scotland.

Annual; flowering in August and September.

This is a variable looking species, both in size and the shape of its leaves; sometimes it is not more than a few inches high, and at others more than two feet long, slender, and is more or less clothed with bristly hairs. The leaves are variously and more or less deeply lobed and toothed, and the teeth are obtuse, or acute. It is common on the sea shore in various parts of the Continent.

GENUS XXVII. DENTARIA.—LINN. *Coral-root*.

Nat. Ord. CRUCIFERÆ: JUSS.

GEN. CHAR. *Siliqua* linear, lanceolate, *valves* flat, ribless. *Seeds* ovate, attached by a dilated cord. *Cotyledons* accumbent.—(See Fig. 2, p. 872.)—Name from *dens*, a *tooth*; so called on account of the tooth-like scales on the roots.

1. *D. bulbifera*, Linn. (Fig. 1065.) *Bulbiferous Coral-root*. Stem simple; leaves alternate, the lower ones pinnated, the upper lanceolate serrated, mostly all bearing axillary bulbs.

English Botany, t. 309.—English Flora, vol. ii. p. 186.—Hooker, British Flora, ed. 4. vol. i. p. 251.—Lindley, Synopsis, p. 25.

Root with creeping fleshy branches, bearing thick tooth-like scales. *Stem* erect, simple, round, smooth, about two feet high. *Leaves* alternate, petiolated, pinnatifid, the leaflets lanceolate, or ovate lanceolate, the two upper ones mostly united at the base, more or less deeply toothed, sometimes almost entire, the upper leaves simple, lanceolate, and all of them generally bear in the axis a purple fleshy scaly bulb. *Inflorescence* a terminal corymbose cluster of large handsome purple flowers, mostly imperfect. *Calyx* of four oblong erect pieces, with a thin membranous usually torn margin. *Petals* oblong, tapering at the base, spreading about half an inch long.

Habitat.—Moist shady places, rare. Near Mayfield, Sussex; in the Old Park Wood, near Harefield, Middlesex; Tonbridge Wells; near Dupplin, and Banks of the Esk below Dalkeith.

Perennial; flowering in April and May.

This plant is remarkable, from its bearing in the axis of its leaves fleshy scaly bulbs, which, as they ripen, fall to the ground, and put out from the base roots, which absorbing nutriment put forth a stem, and thus a new plant is produced in the same manner that it would be by seeds; but as by this means the plant propagates itself, seeds are not formed, and the siliqua are imperfect. Other species of this genus bear bulbs in the same manner, for which reason the name of *bulbifera* is not a very good one, as it seems to imply a distinction which is not its own.

GENUS XXVIII. CARDAMINE.—LINN. *Bitter-cress*.

Nat. Ord. CRUCIFERÆ. Juss.

GEN. CHAR. *Siliqua* linear, lanceolate, *valves* flat, ribless, separating elastically. *Seeds* ovate, attached by a slender cord. *Cotyledons* flat, accumbent.—(See Fig. 1, p. 871.)—Name from καρδια, the heart; and δαμαω, to strengthen, or fortify; in allusion to the supposed strengthening properties of some of the species.

* *Leaves simple*.

1. *C. bellidifolia*, Linn. (Fig. 1066.) *Daisy-leaved Bitter-cress*. Leaves smooth, thickish, the radical ones ovate, petiolate, entire, those of the stem nearly entire, or sub-trilobate; siliqua erect; stigma nearly sessile.

English Botany, t. 2355.—English Flora, vol. iii. p. 187.—Hooker, British Flora, ed. 4. vol. i. p. 252.—Lindley, Synopsis, p. 25.



1065

Denterea bulbifera.



1066

Cardamine bellidifolia.



1067

Cardamine pratensis.



1068

Cardamine amara.



1069

Cardamine hirsuta.



1070

Cardamine impatiens.

Root tapering, slender. *Stems* several, from two to four inches high, slender, simple, erect, smooth, and leafy. *Leaves* dark green, smooth, thick, fleshy, the radical ones ovate, or oblong, tapering into a long footstalk, entire, or slightly waved or toothed on the margin, those of the stem ovate, nearly sessile. *Inflorescence* a terminal sub-corymbose cluster of erect white flowers. *Calyx* erect, ovate, with a pale membranous margin. *Petals* oblong, tapering into a claw, erect. *Stamens* with awl-shaped *filaments*, and yellow two celled *anthers*. *Fruit* an erect linear smooth siliqua, terminating in a short *style* and capitate *stigma*.

Habitat.—Alpine pastures. Scotland.—*Mr. Milne*.

Perennial; flowering in August.

This species is found on the Alps and Pyrenees, and in the North of Europe; but it is very doubtful if it is a native of England.

**** Leaves pinnate.**

2. *C. pratensis*, Linn. (Fig. 1067.) *Common Bitter-cress, or Cuckoo-flower*. Leaves pinnate; leaflets of the radical leaves roundish, ovate, toothed, those of the stem lanceolate, nearly entire; petals obovate, three times as long as the calyx; style short, thick; stigma capitate.

English Botany, t. 776.—English Flora, vol. iii. p. 189.—Hooker, British Flora, ed. 4. vol. i. p. 251.—Lindley, Synopsis, p. 25.

Root tapering, sometimes tuberous, and often scattered over with fleshy scales. *Stem* erect, round, smooth, mostly simple, about a foot high; sometimes, but rarely, the stem is hairy, especially at the base. *Leaves* smooth, rarely hairy, somewhat fleshy, the radical ones with long footstalks, and bearing from two to four pairs of leaflets, of a roundish heart-shaped form, toothed, angular and wavy, each on a short footstalk, the upper leaves mostly bearing more numerous lanceolate sessile leaflets, entire, the terminal one generally largest, and cleft. *Inflorescence* a terminal sub-corymbose cluster of large spreading pinkish flowers, becoming in fruit a lax raceme. *Calyx* erect, of four oblong pieces, smooth. *Petals* four, ovate, emarginate, tapering into a claw, and having on each side a small tooth or notch. *Stamens* erect, with awl-shaped *filaments*, the *style* very short, thick, the *stigmas* small, obtuse. *Fruit* a linear smooth erect siliqua, compressed. *Seeds* ovate, numerous, in a single row.

Habitat.—Moist meadows; abundant.

Perennial; flowering in May.

The flowers by cultivation become double, and form a very pretty border ornament of the garden, and varying in colour from white to a beautiful pale purple. The leaves, when the flowers are double, often form fleshy bulbs, as is the case in the *Dentaria bulbifera*, and take root and become new plants. This is a most beautiful instance of the provision made for the perpetuity of particular species; for when by luxurious feeding the flowers of this plant become double

from the expansion of its parts of fructification into petals, they consequently become barren, so that if other means were not substituted, there would be no further increase of the plant.

The Cuckoo-flower formerly enjoyed the reputation of being possessed of considerable medicinal properties; but it is now entirely rejected from the list of *Materia Medica*, and esteemed only as making a gay appearance in our fields and rustic nosegays.

3. *C. ama'ra*, Linn. (Fig. 1068.) *Large-flowered Bitter-cress*. Leaves pinnate; leaflets of the radical leaves roundish, of the upper ones oblong, toothed and angular; petals obovate, three times as long as the calyx; style filiform; stigma acute; root with creeping underground stems.

English Botany, t. 1000.—English Flora, vol. iii. p. 118.—Hooker, British Flora, ed. 4. vol. i. p. 251.—Lindley, Synopsis, p. 25.

Root fibrous, with creeping underground stems. *Stem* erect, about two feet high, smooth, or slightly hairy, striated, and somewhat zigzag, leafy, the lower *leaves* with three or four pairs of roundish somewhat angular leaflets, the terminal one the largest, smooth, or somewhat hairy, the leaflets of the upper leaves mostly narrower, ovate and toothed, or more angular than the lower ones. *Inflorescence* terminal and lateral sub-corymbose racemes, much elongated after flowering. *Calyx* of four oblong somewhat spreading pieces, with a narrow membranous border. *Petals* four, obovate, entire or notched, three times as long as the calyx, spreading, white or cream-coloured. *Stamens* with awl-shaped *filaments* and two celled *anthers*, of a purple colour. *Style* slender, filiform. *Stigma* small, acute. *Fruit* a linear siliqua, erect, smooth, slender. *Seeds* numerous, compressed, in a single row.

Habitat.—Wet meadows, banks of pools, ditches, and streams.

Perennial; flowering from April to June.

The flowers of this species are as large as those of *C. pratensis*, but they are always white or cream-coloured, and the anthers purple, which, together with the shape of the leaves, readily distinguish them from each other. The leaves and stem have a bitter nauseous taste, and sometimes are gathered for the Water-cress, which they somewhat resemble.

4. *C. hirsuta*, Linn. (Fig. 1069.) *Hairy Bitter-cress*. Leaves pinnate; leaflets petiolated, those of the radical leaves roundish, ovate, angular, or toothed, the upper oblong, or linear and toothed; petals oblong, as long again as the calyx; style short, thick; stigma obtuse.

English Botany, t. 492.—English Flora, vol. iii. p. 188.—Hooker, British Flora, ed. 4. vol. i. p. 251.—Lindley, Synopsis, p. 25.

Root fibrous. *Stem* erect, or ascending, about a foot high, simple, or branched, zigzag, angular and furrowed, hairy, rarely smooth, leafy. *Leaves* pinnate, mostly hairy, dark green, the *leaflets* on short

footstalks, four or five pairs, and a terminal one, the lower ones roundish, ovate, angularly toothed, the upper linear, oblong, toothed, or entire. *Inflorescence* terminal and lateral sub-corymbose clusters, becoming much elongated racemes after flowering. *Calyx* of four oblong purplish pieces, with narrow membranous margins. *Petals* four, white, about as long again as the calyx, oblong, tapering into a short claw. *Stamens* four or six, erect, with awl-shaped *filaments* and yellow *anthers*, of two cells. *Style* short, thick. *Stigma* small, obtuse. *Fruit* a linear compressed erect smooth siliqua, the *seeds* numerous, compressed in a single row.

Habitat.—Moist shady waste and cultivated places.

Annual; flowering from March to June.

5. *C. impatiens*, Linn. (Fig. 1070.) *Narrow-leaved Bitter-cress*. Leaves pinnate, auriculated at the base; leaflets of the lower leaves petiolated, ovate, three or five-cleft, the upper oblong, lanceolate, sessile, toothed, or entire; petals oblong, narrow, scarcely as long again as the calyx; style short; stigma obtuse.

English Botany, t. 80.—English Flora, vol. iii. p. 187.—Hooker, British Flora, ed. 4. vol. i. p. 251.—Lindley, Synopsis, p. 25.

Root slender, tapering. *Stem* erect, about two feet high, angular, furrowed, smooth, mostly zigzag, leafy and simple, or branched. *Leaves* pinnate, the common stalk auriculated at the base, with awl-shaped ciliated *stipules*, leaflets numerous, those of the lower leaves on short footstalks, ovate, cut, or deeply toothed with two or three lateral teeth, the upper leaves with oblong or lanceolate, mostly sessile leaflets, entire, or slightly toothed. *Inflorescence* a terminal sub-corymbose racemes, becoming much elongated and lax after flowering. *Calyx* nearly erect, of four ovate pale pieces. *Petals* oblong, or obovate, small, a little longer than the calyx, white. *Stamens* with slender *filaments* and small yellow *anthers*, of two cells. *Fruit* an erect slender smooth narrow siliqua, terminating in a short tapering *style* and small obtuse *stigma*. *Seeds* numerous, compressed in a single row.

Habitat.—Moist rocks, rare; in several parts of Derbyshire, Leicestershire, Westmoreland, and Cumberland; near the falls of the Clyde, and banks of the river Donne, Scotland.

Annual; flowering in May and June.

This species is readily distinguished by its fringed stipules at the base of the leaf stalks. The specific name of *impatiens* is applied to this plant on account of the valves of the pods when ripe, suddenly curling up on the least motion of the plant, and throwing the seeds to some distance; the cause of which action will be seen, on examination of the pods, to depend upon their structure. The valves are thin, elastic, ribless membranes, of condensed cellular substance; the septum of the cells is a very delicate transparent

web-like membrane, apparently formed of a single layer of muricated cells, (strikingly beautiful under a strong magnifying power), stretched across a frame of condenced cellular substance and vessels, forming the placenta, from which arises the funiculi, or cords of the seeds; this frame is rigid and firm, and constantly exerting an inward pressure, which the delicate septum and slender valves are unable to resist when they are become dried by the sun or heat; consequently the least motion elicits the unequal pressure of the ribs upon the valves, and forces them out.

GENUS XXIX. NASTURTIIUM.—BROWN. *Cress.*

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR. *Siliqua* nearly cylindrical, linear. *Stigma* sub-bilobate. *Calyx* equal at the base, spreading. *Seeds* small. *Cotyledons* accumbent.—(See Fig. 1, p. 871.)—Name from *Nasus tortus*, a convulsed nose; it is supposed to be so called from the effects of some of the acrid species.

1. *N. officinale*, Br. (Fig. 1071.) *Water-Cress*. *Siliqua* linear, as long as the pedicles; leaves pinnate, the upper ones with from three to seven pairs of waved sub-ovate leaflets, the lower ones with one, the terminal leaflet larger, roundish, or sub-cordate.

English Flora, vol. iii. p. 193.—Hooker, British Flora, ed. 4. vol. i. p. 253.—Lindley, Synopsis, p. 23.—*Sisymbrium Nasturtium*, Linn.—English Botany, t. 855.

Root of numerous long white simple fibres. *Stem* smooth, angular, leafy, simple or branched, spreading, and mostly floating upon the surface of the water, purplish at the base, very variable in length. *Leaves* pinnate, smooth, and somewhat fleshy, a deep shining green, the footstalk long, channeled, the lower ones with a pair of small lateral leaflets, the upper ones with from three to seven pairs, the terminal one largest, roundish, ovate, sometimes heart-shaped at the base, the margins waved, or obtusely toothed. *Inflorescence* terminal sub-corymbose racemes, much elongated when in fruit, the pedicles about an inch long, slender, spreading. *Calyx* of four smooth oblong spreading pieces. *Corolla* of four ovate spreading petals, with a short claw. *Stamens* with awl-shaped filaments and yellow anthers. *Fruit* an erect or spreading siliqua, cylindrical, about an inch long, the valves turgid, smooth, crowned by the short style and obtuse cleft stigma.

Habitat.—Brooks, rivers, and springs; frequent.

Perennial; flowering in June and July.

This is the well known Water-cress, which, from its becoming so much used as a salad, is now cultivated very extensively in the neigh-



1071

Nasturtium officinale.



1072

Nasturtium sylvestre.



1073

Nasturtium terrestre.



1074

Nasturtium amphibium.



1075

Raphanus raphanistrum.



1076

Raphanus maritimus.

bourhood of London. It has long been esteemed for its antiscorbutic properties, and its pleasant pungent bitter renders it very agreeable to many persons.

2. *N. sylvest're*, Br. (Fig. 1072.) *Creeping Nasturtium*. Siliqua linear, as long as the pedicle; leaves pinnate, the lower ones with lanceolate cut lobes, the upper with linear entire ones; root with creeping stems.

English Flora, vol. iii. p. 193.—Hooker, British Flora, ed. 4. vol. i. p. 253.—Lindley, Synopsis, p. 23.—*Sisymbrium sylvestre*, Linn.—English Botany, t. 2324.

Root with long creeping underground stems. *Stems* erect, about a foot high, angular, branched, waved, leafy, roughish, often purplish at the base. *Leaves* numerous, pinnate, smooth, the lower ones with lanceolate lobes, deeply cut or toothed, the upper leaves with linear lanceolate entire lobes, or slightly toothed. *Inflorescence* terminal and lateral, sub-corymbose racemes, much elongated after flowering. *Calyx* spreading, of four oblong smooth pieces, pale, yellowish. *Petals* four, obovate, golden yellow, half as long again as the calyx. *Fruit* linear spreading siliquas, about as long as the pedicles, seldom perfected. *Style* short, crowned by the obtuse emarginate stigma.

Habitat.—The margins of rivers and ditches, and wet gravelly meadows; but not very common.

Perennial; flowering in July and August.

This is readily distinguished by its creeping perennial roots and pinnate leaves, with narrow leaflets, especially the upper and entire ones.

3. *N. terres'tre*, Br. (Fig. 1973.) *Marsh Nasturtium*. Siliqua oblong, linear, about as long as the pedicle; leaves lyrato-pinnatifid, smooth, with unequally toothed lobes; petals not longer than the calyx; root fibrous, simple.

English Flora, vol. iii. p. 193.—Hooker, British Flora, ed. 4. vol. i. p. 253.—Lindley, Synopsis, p. 23.—*N. anceps*, Reicheubach.—*N. palustris*, De Cand.—*Sisymbrium amphibium*, var. *terrestre*, Linn.—*S. terrestre*.—English Botany, t. 1747.

Root simply fibrous, tapering. *Stem* erect, or ascending, from one to two feet high, smooth, angular, furrowed, branched and leafy. *Leaves* smooth, the lower ones lyrato-pinnatifid, with ovate toothed or cut segments, the terminal lobe large, ovate, toothed or waved, the upper leaves often simply pinnate, with equal ovate lanceolate lobes. *Inflorescence* terminal and lateral sub-corymbose clusters, becoming elongated racemes. *Calyx* of four oblong spreading smooth segments, yellow. *Petals* obovate, not longer than the calyx. *Fruit* a spreading smooth turgid siliqua, linear, oblong, curved upwards on a slender pedicle, about half as long as the pod, or longer. *Style* very

short. *Stigma* obtuse, depressed, and notched. *Seeds* small, subglobose, numerous.

Habitat.—Watery places, especially in a sandy district.

Annual; flowering from June to September.

4. *N. amphibium*, Br. (Fig. 1074.) *Amphibious Nasturtium*
Siliqua oblong, linear, about one-third the length of the slender pedicles; leaves oblong, lanceolate, serrated, or pinnatifid, smooth; petals longer than the calyx; root fibrous, simple.

English Flora, vol. iii. p. 195.—Hooker, British Flora, ed. 4. vol. i. p. 253.—Lindley, Synopsis, p. 23.—*Sisymbrium amphibium*, Linn.—English Botany, t. 1840.

Root, long simple fibres. *Stem* long, branched, trailing, smooth, angular, and furrowed, rooting from the axis of the leaves. *Leaves* numerous, the lower submersed ones much divided in a pectinato-pinnatifid manner, the upper oblong, lanceolate, sinuato-serrated, with linear lobes, or simply but unequally serrated, all smooth, mostly petiolated, and often auriculated at the base. *Inflorescence* terminal and lateral sub-corymbose clusters of numerous crowded flowers, becoming elongated lax racemes in fruit. *Calyx* oblong, smooth, yellow, spreading. *Petals* four, oblong, linear, entire, or notched at the end, longer than the calyx, a golden yellow colour. *Fruit* linear, oblong, turgid, smooth, terminating in a short slender *style*, and crowned by the obtuse capitate *stigma*, the *pedicle* slender, spreading, often three or four times longer than the siliqua. *Seeds* seldom perfected.

Habitat.—Banks of rivers, canals, and wet places; frequent.

Perennial; flowering from June to August.

This species is readily distinguished from the last by its longer petals, longer and more slender pedicles, shorter pods, which are mostly abortive, and by the shape of the leaves.

GENUS XXX. RAPHA'NUS.—LINN. *Radish*.

Nat. Ord. CRUCIFERÆ. JUSS.

GEN. CHAR *Siliqua* linear, or oblong, or sub-conical, smooth and inseparable, or beaded, and separating at the joints, many seeded. *Seeds* round, pendulous. *Cotyledons* conduplicate.—(See Fig. 3, p. 872.)—*Calyx* erect.—Name $\epsilon\alpha$, *quick, rapid*; and $\phi\alpha\iota\upsilon\mu\alpha\iota$, *to appear*; so called on account of the rapid growth of some of the species.

1. *R. Raphanistrum*, Linn. (Fig. 1075.) *Wild Radish, or Jointed Charlock*. Siliqua of one cell, beaded, striated; style slender, awl-shaped; leaves simply lyrate.

English Botany, t. 856.—English Flora, vol. iii. p. 226.—Hooker, British Flora, ed. 4. vol. i. p. 257.—Lindley, Synopsis, p. 34.

α. Flowers white, beautifully pencilled with purple veins.

β. Flowers yellow, with purple veins.

γ. Flowers sulphur-coloured, with yellow or lilac veins.

Root slender, tapering. *Stem* branched and spreading, of a glaucous green, smooth or rough, with sharp reflexed rigid bristles. *Leaves* lyrate, with channeled footstalks, sinuated, lobed, and toothed, the lateral lobes oblong, the terminal one large, roundish, ovate, dark green above, paler beneath, smooth, or more or less rough, with rigid bristly hairs. *Inflorescence* terminal sub-corymbose clusters, becoming elongated lax racemes in fruit. *Calyx* of four oblong scarcely spreading pieces, yellowish, smooth or hairy. *Petals* four, ovate, tapering into a narrow claw, entire, or waved on the margin. *Stamens* erect, with awl-shaped *filaments* and ovate *anthers*, of two cells. *Fruit* an erect beaded siliqua, one celled, from one to six or eight seeded, tapering into an awl-shaped style, slender, and terminating in a small obtuse stigma, striated and furrowed, smooth, glaucous, separating at each of the joints, and not opening lengthwise, as is generally the case with other plants. *Seeds* large, globose.

Habitat.—Corn fields; frequent.

Annual; flowering in June and July.

2. *R. maritimus*, Smith. (Fig. 1076.) *Sea Radish*. Siliqua of one cell, beaded, deeply furrowed; style slender, awl-shaped; leaves interruptedly lyrate.

English Botany, t. 1643.—English Flora, vol. iii. p. 226.—Hooker, British Flora, ed. 4. vol. i. p. 257.—Lindley, Synopsis, p. 34.

This is a larger, stouter, more robust plant than the last species, with thicker *roots* and interruptedly lyrate *leaves*, all serrated, and somewhat sinuated. The *Pods* are more deeply furrowed and jointed; but in other respects it is the same, and we think a very doubtful distinct species.

Habitat.—Sea side. Beachy Head, Sussex; Jersey and Guernsey; the Isle of Bute and Mull of Galloway, Scotland; Curren of Larne, and Hill of Howth, Ireland.

Biennial; flowering in June.

The Wild Radish, or Jointed Charlock, is an extremely common and troublesome weed in corn fields, especially in the North of England; and the root of *R. maritimus* is so acrid and pungent, that Dr. Walker considers it preferable to the Horse Radish. The Garden Radish, *R. sativus*, is well known as a favourite salad. Of this there are produced by cultivation many varieties. These are arranged by De Candolle under two heads—

1. *RADICULA*. The root more or less fleshy, white, pink, or red.

α. *rotunda*. The root somewhat globose. *The Naples or Turnip Radish*.

- β. oblonga.* The root oblong, tapering. *The common Garden Radish*, of which there are several varieties, white, pink, red, &c.
- γ. oleifera.* The root elongated, scarcely fleshy. *The Oil-seeded Radish.*
2. NIGER. The root somewhat hard, fleshy, and of an acrid flavour.
- α. vulgaris.* The root oblong, black externally, white within, *Common Spanish Radish.*
- β. rotundus.* The root roundish, black externally, white within. *Turnip Spanish Radish.*
- γ. grisens.* The root grey externally. *Grey Spanish Radish.*
- δ. albus.* The root globose, depressed, white. *White Spanish Radish.*

Their use and mode of cultivation are too well known to require description here. Some are grown for spring use, others for the summer, autumn, and winter.

The pink colour of the rind of the common Garden Radish, when scraped or bruised in water, is changed to a dull purplish blue, and is a delicate test of acids, which, upon being added to it, immediately change it to its original beautiful pink colour; from which it appears that the pink colour depends upon the presence of some acid in the rind, which escapes upon exposure to the atmosphere. This acid is, doubtless, the carbonic. We have before alluded to this property of colour in plants, and endeavoured to point out some use to which it may be applied in the cultivation of flowers by improving their colours, &c., (see *Papaver*, p. 750).

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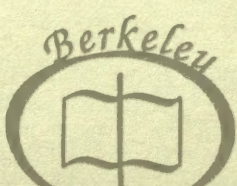
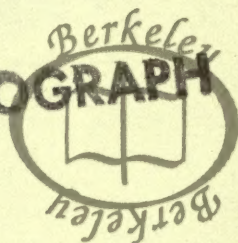
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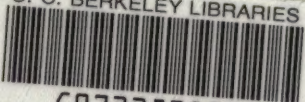
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